

MEMBER OF THE A. B. C.  
FIFTIETH YEAR

# PAPER TRADE JOURNAL

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY

ESTABLISHED IN 1872

Vol. LXXIV. No. 19 NEW YORK AND CHICAGO, MAY 11, 1922

Per Annum, \$4.00  
Single Copy, 10 Cents

## Wood Pulp

Many of our customers are now looking ahead and buying KRAFT and SULPHITE for first open water shipments, and for shipments later in the year. We have already booked a good-sized tonnage.

*We will be pleased to figure on YOUR requirements.*

We also have pulp available for prompt shipment from the docks in this country.

### SCANDINAVIAN-AMERICAN TRADING COMPANY

50 East 42nd Street  
New York, N. Y.

## TRAIN SMITH COMPANY

### Paper Mill Supplies

10 Milk St. (Old South Bldg.), Boston, Mass.

Packing House:  
Chelsea, Mass.

Branches:  
London-Liverpool

## PARSONS TRADING COMPANY

### Paper Exporters

17 Battery Place New York

London Stockholm Bombay Shanghai Wellington  
Havana Buenos Aires Mexico Rio de Janeiro Naples  
Parsons Trading Company (Australia), Limited  
Sydney Melbourne

## ATTERBURY BROS.

(INCORPORATED)

WOOD PULP, RAGS AND PAPER  
STOCK, FRENCH CASEINE

145 NASSAU STREET (POTTER BLDG) NEW YORK

CABLE ADDRESS  
REGHAMMOND NEW YORK

TELEPHONE  
VANDERBILT 4568-9

## R. F. HAMMOND

342 MADISON AVENUE  
NEW YORK

WOOD PULP

PAPER

# PAGE 19!



## PROTECTIVE PAPERS

Glassine Parchmoid  
Vegetable Parchment Greaseproof

*Diamond Fibre Receptacles of all kinds*

Diamond State Fibre Company

Dept. 27

BRIDGEPORT, PENNSYLVANIA (near Philadelphia)

## PRICE & PIERCE., Ltd

17 East 42d Street, New York

Sole Selling Agents for  
Bathurst Company Ltd.  
BATHURST, N. B.

**Kraft Pulp and Easy  
Bleaching Sulphite**

## INTERNATIONAL PULP CO.

NEW YORK CITY

**ASBESTINE PULP + FILLER**  
90% Retention

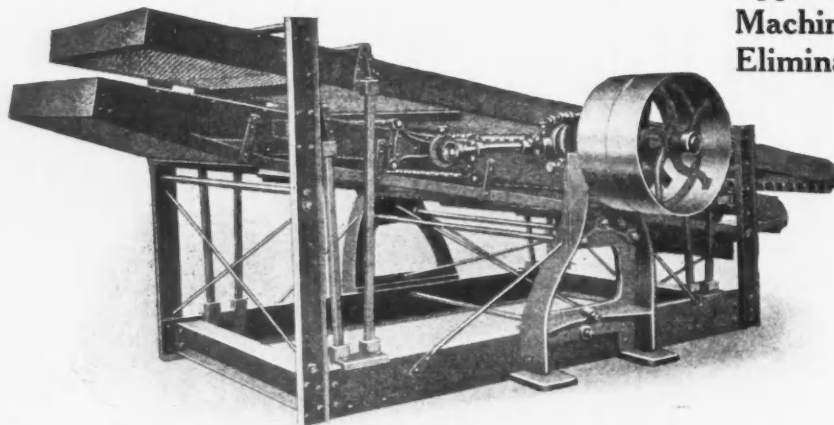
REG. U. S. PATENT OFFICE

**PULP AND PAPER**  
OF  
EVERY DESCRIPTION  
**HUDSON TRADING COMPANY**  
300 Madison Avenue  
NEW YORK  
ESTABLISHED 1888  
CABLE ADDRESS: "HUDTRACO," NEW YORK

**DANA T. McIVER**  
*High Grade Printing Paper*  
116 So. Michigan Avenue  
CHICAGO  
  
BOOK AND COATED PAPER  
Car Lot and Tonnage Contracts

**FITCHBURG DUCK MILLS**  
ESTABLISHED  
1844.  
FITCHBURG, MASS.  
MANUFACTURERS OF  
**Standard and Multiple  
DRYER FELTS**  
English Weave in Two, Three, Four, Five  
and Six Ply  
60 Inches to 176 Inches in Width  
**Fine Faced Felts for Fine Papers**  
**Absolutely No Felt Marks in Paper**  
TRIUNE Three Ply Felts for Coarse Papers

## ALL-METAL SHAKER CHIP SCREEN



Structural Steel Frame  
Opposed Eccentric Drive  
Machinery Steel Trunnions  
Eliminates All Vibration

*Write  
for  
Prices  
and  
Description*

WATERVILLE IRON WORKS

WATERVILLE, MAINE

# CALDWELL SERVICE



HALF a million dollars worth of well-selected stock, constantly maintained, and an organization keyed up to the theory that plant efficiency is measured by the number of orders shipped on the day of receipt, accounts for Caldwell service. Let us figure on your requirements.

**H. W. CALDWELL & SON CO.**  
LINK-BELT COMPANY, OWNER  
CHICAGO, 17th Street and Western Avenue  
NEW YORK, Woolworth Building




## LAWRENCE GROCERS' BAGS



Here's a line that is proving a bulwark of strength for every jobber. Why not fortify yourself by concentrating exclusively on the *Lawrence Quality* production?

*James Lawrence, President*

**THE LAWRENCE BAG COMPANY**  
MIAMISBURG, OHIO

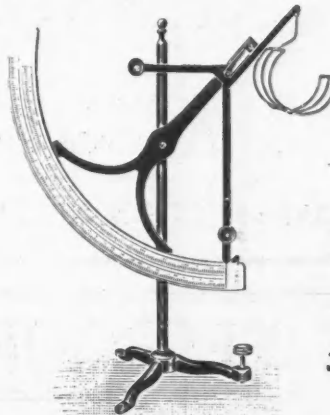
ALVAH MILLER, Pres. TOM T. WALLER, Vice-Pres.  
NATHL L. MILLER, Secy-Treas.

## Craig-Becker Company INC.

Domestic and Foreign  
Ground Wood and  
Sulphite

52 VANDERBILT AVE.  
NEW YORK CITY

## SCHOPPER STANDARD PAPER TESTERS



Are  
the  
Best

### Full Sheet Paper Scale

Standard Scale for telling actual weight per ream of 480 and 500 sheets in the size of the sheet that is weighed. Graduated  $\frac{1}{2}$  to 125 lbs. Brass weight comes with the Scale to double its capacity.

**FOREIGN PAPER MILLS, Inc.**  
U. S. A. Sole Agents CANADA  
72 Duane Street New York, N. Y.

## Bayless Manufacturing Corporation

# RED CAP FIBRE

AND OTHER

### High Grade Sulphite Wrapping Papers

**STRONG  
UNIFORM**
**MOISTURE RESISTING  
ECONOMICAL**

A. N. WARING, Manager of Sales  
527 Fifth Avenue, New York



Pulp and Paper Mills  
Austin, Pa.

**The Pulp and Paper Trading Co.**  
21 East 40th Street New York City

**DEALERS IN DOMESTIC CHEMICAL AND  
MECHANICAL PULPS AND PAPER**

AGENTS FOR

J. &amp; J. Rogers Company, Ausable Forks, N. Y.

Ware Coated Paper Company, Ware, Mass.

Procter &amp; Gamble Distributing Co.

Mills at Augusta, Georgia, and Memphis, Tenn.

Canadian Kraft Limited, Three Rivers, Canada

Dealers in Wayagamack Kraft Pulp

**EASTERN AGENTS of Sulphite Pulp. Made by  
Port Huron Sulphite & Paper Co., Port Huron, Mich.**

## J. ANDERSON & CO.

FREDERICK BERTUCH, SPECIAL PARTNER

21 East 40th Street, New York City

### Importers of Chemical Pulps

**BLEACHED AND UNBLEACHED**

Agents for Kellner Partington Paper Pulp Co., Ltd.  
Sarpsborg, Norway; Forshaga, and Edsvilla, Sweden;  
Bergvik and Ala Nya Aktiebolag, Soderhamn, Sweden  
Scandinavian Export Agents

TEXAS GULF SULPHUR CO., TEXAS CITY, TEXAS

### PAPER MAKERS CHEMICAL CO.

### WESTERN PAPER MAKERS CHEMICAL CO.

EASTON  
JACKSONVILLE

HOLYOKE  
PENSACOLA

KALAMAZOO  
ST. AUSTELL

CLAYS                      ROSIN                      SIZE  
SATIN WHITE      FOAM KILLER

FELT SOAP and OTHER SPECIALTIES

## THE WATERBURY FELT CO.



### FELTS and JACKETS

For Every Grade of Paper and Pulp

Correspondence and Orders  
Solicited

Manufactured at  
SKANEATELES FALLS  
New York

# GREASEPROOF PARCHMENT PAPERS

OF STANDARD QUALITY

Purity

Quality Plus

Ashmere

Equally Fine

Berkshire

Stands the Test

OUR PAPERS ARE EXCELLENT FOR MEAT MARKETS, GROCERS' AND GENERAL PACKING HOUSE REQUIREMENTS

## Mountain Mill Paper Co.

(Write for Samples and Quotations)  
MILLS AND GENERAL OFFICES  
125 Forest Street, Lee, Mass.

# Get Ready

*for the Spring Drive*

The LaBoiteaux organization is more than a selling machine. It is composed of men trained to execute your needs intelligently from a thorough knowledge of your requirements.

Get ready for Spring by letting us quote most interesting prices made possible by productions we control of

## Box Board

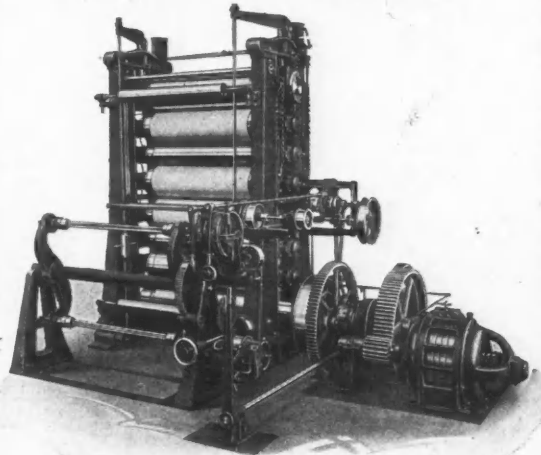
*Paper Board Specialties*

You are welcome to the prompt service rendered in each of our four offices.

**The C. L. LaBoiteaux Co.**  
 Cincinnati Cleveland Chicago New York

# NORWOOD

## Super Calenders



*The Standard for Over 30 Years.*

**NORWOOD ENGINEERING CO.**  
 Florence, Mass., U. S. A.

*Daily Capacity of 600 Air-Dry Tons*

The extent  
 of our production of  
 High Grade  
**BLEACHED  
 Sulphite Fibre**

insures uniform quality, prompt  
 shipments and market prices

**BROWN COMPANY**

*founded 1852*

**PORTLAND MAINE**

*Mills at Berlin, New Hampshire*

NEW YORK CITY  
 Woolworth Bldg.

CHICAGO  
 110 So. Dearborn St.

The  
**St. Regis Paper Company**  
 and the  
**Hanna Paper Corporation**

*Daily Capacity, 425 Tons*

**Newsprint  
 Catalog  
 Butchers' Manila  
 Packers' Oiled Manila  
 Jute Container Board  
 Ground Wood and Unbleached Sulphite**

*Manufacturers of*  
**TARZAN Fibre Shipping Cases**

*General Sales Office:*  
**30 East 42nd St. New York**



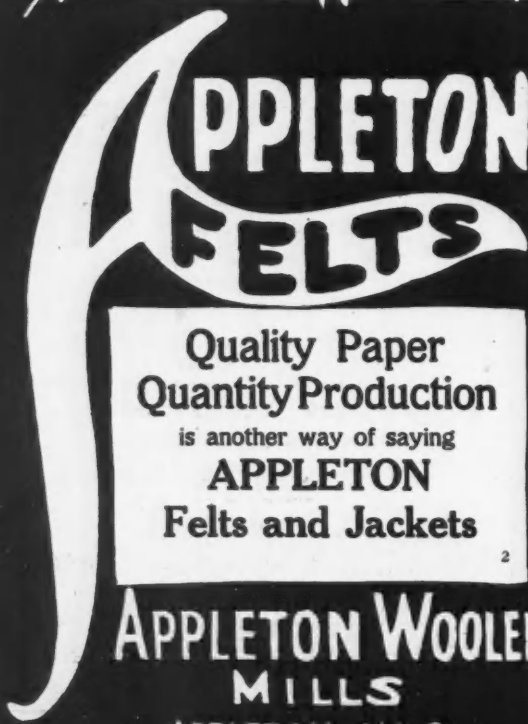
**SAVE MONEY!**

Scientific oil storage equipment pays for itself and shows a profit within a few months.

It does this by preventing deterioration of valuable lubricating oils—and by eliminating the wear and tear to machinery that results from the use of dirty, gritty oils.

Let us send you our bulletins covering any type of oil handling equipment in which you are interested.

**TOKHEIM OIL TANK & PUMP CO.**  
1614 Wabash Ave. Ft. Wayne, Indiana



**APPLETON  
FELTS**

Quality Paper  
Quantity Production  
is another way of saying  
**APPLETON**  
Felts and Jackets

**APPLETON WOOLEN  
MILLS**  
APPLETON, WIS.

## Cutting Dies

of superior quality



**N**O matter how intricate or involved the design is, we'll make it and make it right. Every die of carefully selected steel, guaranteed flawless and warranted to give long, satisfactory service. The more difficult your die-cutting problems the more we'll enjoy helping you solve them. Send us a rough sketch or description of what you want and we'll tell you if it is practically possible to produce it.

Circular, oval and elliptical dies in all sizes. Envelope dies for both regular and open-end shapes. Dies for labels and cut-outs of every conceivable kind. Glove dies, shoe dies, cloth-cutting dies—we make them all. Write for descriptive booklet, illustrating 50 different dies, many of which are very intricate, showing what seemingly impossible designs we are able to make.

**The INDEPENDENT DIE CO., Inc.**  
2641 LaSalle Street  
ST. LOUIS, MO.

ESTABLISHED 1828

SOUTH WINDHAM, CONN.

# THE SMITH & WINCHESTER MFG. CO.

MANUFACTURERS OF

## PAPER BAG MAKING MACHINERY

AS ILLUSTRATED AND DESCRIBED IN BULLETIN NO. 19

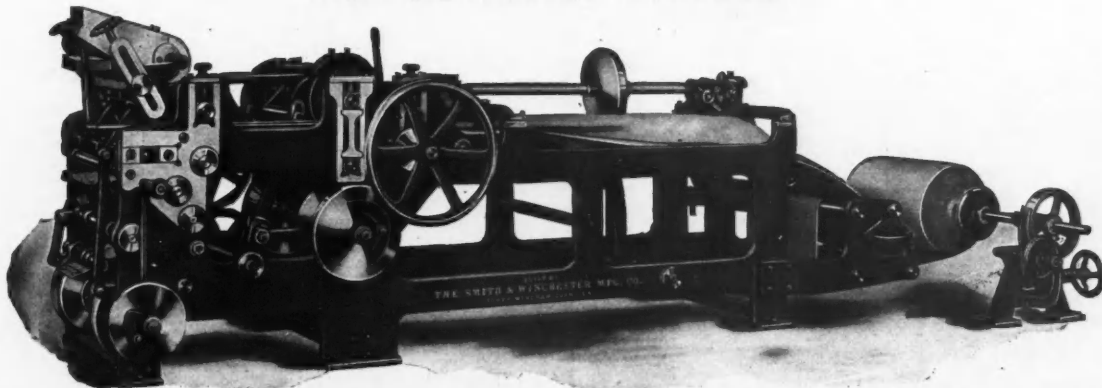
## PAPER MAKING—PAPER CUTTING MACHINERY

FOURDRINIER—CYLINDER—WET MACHINES

JORDAN ENGINES—PUMPS—CALENDERS—REELS—CUTTERS—WINDERS—ROLLS

THE RAINSTORM SHOWER PIPE—COLLAPSIBLE CORES

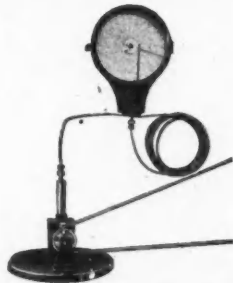
## DIE CUTTING PRESSES



OUR NO. 4 NATIONAL BAG MACHINE FOR THE PRODUCTION OF FLOUR, CEMENT AND LIME SACKS; ALSO CHARCOAL BAGS

# UNIFORM QUALITY OF PULP

SPEED and PRESSURE are two BIG ESSENTIALS in grinding pulp. These must be properly proportioned in order to secure the highest degree of results with the lowest consumption of power.



TRADE MARK  
**BRISTOL'S**  
REG. U.S. PAT. OFFICE

## Recording Electric Tachometers

and

## Recording Pressure Gauges



are used to automatically record the speed of the shafting and the pressure of the grinding stones. With the information furnished by the instruments there is no need for guess-work. The operator can tell the speed and pressure by just looking at the Bristol chart. The superintendent also has the same chart record on his desk the following morning. He can tell just what the conditions were for every hour of the day.

In one up-to-date pulp mill they are using thirty-six Bristol's Recording Electric Tachometers and Recording Pressure Gauges for the application mentioned above.

Bristol's is the most extensive line of Recording Instruments in the world—the "Standard" for over thirty years.

*Better send for copy of Information Bulletin BE-303.*

**THE BRISTOL COMPANY, - - Waterbury, Conn., U. S. A.**

**BOSTON NEW YORK PITTSBURGH Branch Offices DETROIT CHICAGO ST. LOUIS SAN FRANCISCO**

## Starch

Paper manufacturers generally recognize the value of starch in the manufacture and coating of paper.

To obtain definite results in any desired direction in the preparation of paper, not merely a difference of grade, but a difference of kind or variety of starch is required.

Our carefully controlled and thoroughly standardized processes enable us to produce exactly the various starches which the paper industry has found economical and efficient.

**Corn Products Refining Company**  
17 Battery Place New York

## Starch

## West Virginia Pulp and Paper Company

*Manufacturers of*

### Supercalendered and Machine Finished Book and Lithographic Papers

Offset, Envelope and Music  
Paper, High Grade Coated  
Book and Label Papers

*also*

### Bleached Spruce Sulphite and Soda Pulp

200 Fifth Avenue  
New York

732 Sherman Street  
Chicago



*Yours for Bigger  
and Better Business*

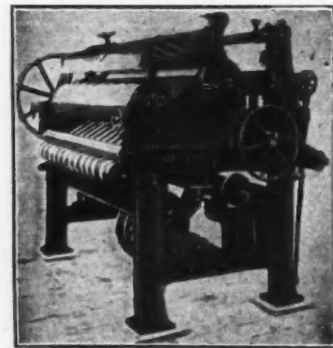
# K·V·P

Genuine Vegetable Parchment  
Pure White Waxed Paper  
Bond—White and Six Colors  
Manifold—Substance 8 and 10.



## THE CLARK-AIKEN CO.

Successors to  
H. C. Clark & Son Machine Co.  
**PAPER MILL MACHINERY**  
LEE, MASS.



Revolving Paper Cutters—Rag Cutters—Cylinder Paper  
Machines—Washing and Beating Engines—Chilled Iron  
and Paper Calenders—Fan and Stuff Pumps—Engine  
Roll Bars and Bed Plates—

Cylinder Molds—Marshall Drives—Slitters and Rewinders  
—Reels—Dryers with Improved Packing Boxes—  
Wet Machines—Gun Metal and Rubber Rolls—Rolls  
Reground.



# JORDAN FILLINGS

For all makes of Jordans:

Jones  
Emerson  
Black-Clawson  
Dillon  
Miami  
Noble & Wood  
Horne

Uniformly  
High  
Grade  
Quality  
and  
Finish

Order BOLTON QUALITY next time and see how much longer and better service you can get for a low cost.

*Prompt shipments.*

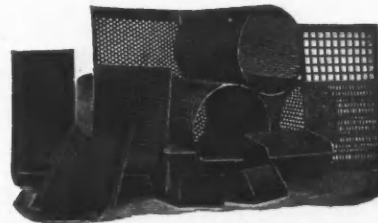
**JOHN W. BOLTON & SONS, INC.**  
Lawrence, Mass.

*High Grade Fly Bars, Bed Plates, Jordan Fillings and Knives.*

# PERFORATED METAL SCREENS

IN STEEL AND ALLOYED METALS

For Pulp and Paper Mills



Elevator Buckets, Conveyor Flights and Troughs, General Sheet and Light Structural Work

Light and Heavy Steel Plate Construction

**HENDRICK MANUFACTURING CO.**

75 Dundaff Street, Carbondale, Pa.

New York Office, 30 Church St.

Pittsburgh Office, 544 Union Arcade Building



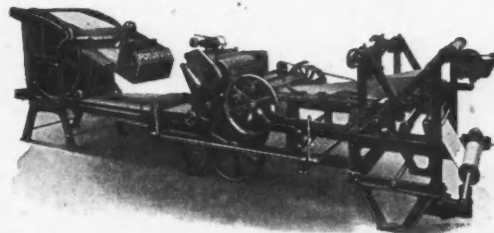
# Cleaner Paper

We know that one of the most important factors in paper making is that of cleansing. We designed and constructed our Type "B" IRON EXTRACTOR with a view toward effecting greater satisfaction in the cleansing processes and the success with which this device has met during its ten years on the market is sufficient proof of its efficiency.

We will send Bulletin and all information on request.

**The Roland T. Oakes Co.**  
HOLYOKE, MASS

# POTDEVIN PAPER BAG



# ENVELOPE—PAPER WAXING MACHINERY

**POTDEVIN MACHINE CO.**

1223 38th Street

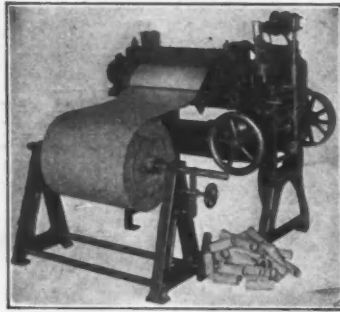
Brooklyn, N. Y.

## Dietz Toilet Paper Machinery

AND LATEST IMPROVED PATENTED

### Automatic Tube Machines

For Making Tubes for Toilet  
Paper Rolls, Paper Towel Rolls



Patented Feb. 22, 1916, May 18, 1920.

Capable of producing 3,600

**Toilet  
Tubes**

per hour direct  
from roll.

**Towel  
Tubes**

are made at rate  
of 1,800 per hour.  
Substantially built  
and fully guaranteed.

Toilet Paper Machines for making Toilet Rolls with or without perforations and machines for making Sanitary Crêpe Paper Towels, Punch Presses for Sheet Toilet Paper, Drop Roll Slitters, Slitting and Rewinding Machines, Side and Center Seam Merchandise Envelope Machines, Photo Mount Beveling Machines, Candy Bag Machines, Punch Presses for Playing Cards, Rotary Card Cutting and Collating Machines, Etc.

### DIETZ MACHINE WORKS

126-128 Fountain Street

PHILADELPHIA, PA.

Corner Waterloo St., Below Diamond St., Bet. Front and 2d Sts.



EVERYTHING IN

## PULP & PAPER

**J. F. PATTON CO., INC.**

342 Madison Ave.

New York City

(Cable address - Pulp.N.Y.)



## “ALBANY”

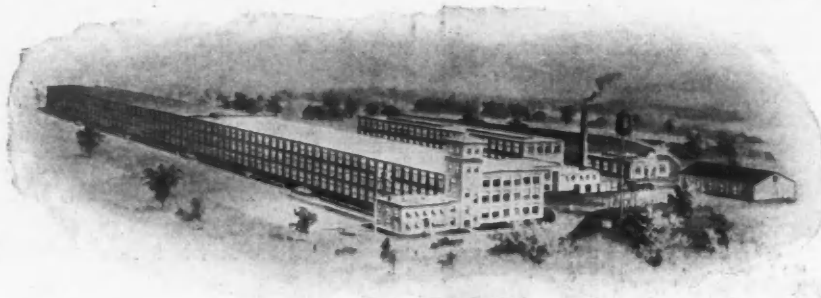
### FELTS and JACKETS for Paper and Pulp Mills

**A**LBANY FELTS are adapted for every type of Paper and Pulp Machine, and for every kind of stock. Every one is made of Pure Wool of the very best quality.

☐ Twenty-five years' experience in making Paper Makers Felts and Jackets has shown us how to make them as best suited to the needs of various kinds of machines and stock.

☐ Every possible effort is made to give our customers the best satisfaction and to weave into our Felts and Jackets the longest possible life.

ALBANY, ALBANY FELT COMPANY NEW YORK





**TOILETS-TOWELS-NAPKINS**

All Varieties      Rolls and Interfolded      Flat and Folded

**Backing up the Jobber**

*With Our Quality Service*

The first order may be sold by the salesman. Successive purchases are made because of satisfactory conditions surrounding the first sale. Our aim is to supply the Jobber with goods and service that will not only assist the salesman in selling, but in keeping the customer sold.

**Fort Howard Paper Co.**  
Green Bay,                      Wisconsin

**A Worthy Companion TO THE MULLEN PAPER TESTER**

(which indicates the exact *bursting* strength of paper IN POUNDS PER SQUARE INCH).

**Is the New PERKINS TENSILE TESTER**



which registers the exact *tensile* strength of paper in POUNDS PER INCH STRIP.

Like the MULLEN PAPER TESTER, it is simple—easily operated—thoroughly reliable.

The new Perkins Tensile Tester was described on Pages 21 and 47 of the PAPER TRADE JOURNAL of April 29th, 1922.

Write for full information as to the PERKINS TENSILE TESTER and the MULLEN PAPER TESTER to Dept. P5.

**B. F. Perkins & Son, Inc.**  
Holyoke, Mass., U.S.A.

**Wood Plugs**

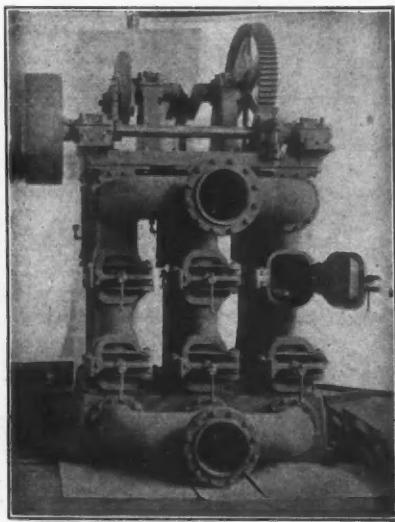


For paper rolls, made to pattern under shop names in four sizes as follows: **CARD**, 3"; **MANILLA**, 2 5/8"; **NEWS**, 2 1/2"; **DRUG**, 2 1/4"; 1 3/4" in length, having 1" hole, and tumble polished when shipped. You should if possible, adjust your needs to these stock sizes, with prospect of prompt shipping in carlots or less, thereby avoiding serious delays in waiting for something special. Samples cheerfully furnished.

**O. L. BARTLETT**  
MOUND CITY, ILL.      Eastern Office: 855 West End Ave., New York, N.Y.

**The Black-Clawson Co.**  
Hamilton, Ohio

**Builders of All Types of Paper Making Machines and Machinery**



for  
**PAPER**  
and  
**PULP**  
**MILLS**

*Successful machines in operation are proof our work is built right.*

WANS LAGERLOEF, Pres. and Treas.  
 ORVAR HYLIN, Vice-President  
 MAURICE LONDON, Secretary

Telephone  
 Murray Hill 4288  
 4287



*Lagerloef Trading Company, Inc.*



52 VANDERBILT AVENUE, NEW YORK, N. Y.

Sole Agents in U. S. A., Canada, Mexico and Cuba for

**FINNISH CELLULOSE ASSOCIATION, HELSINGFORS, FINLAND**

AND

**FINNISH WOOD PULP UNION, HELSINGFORS, FINLAND**



**WE ARE SAFE IN OUR PROPOSITION**

*YOU'LL MAKE NO MISTAKE IN ACCEPTING IT*

**PICKLES DRYING REGULATOR**

will do everything we claim for it and more. The test costs you nothing until you are satisfied. Many mills tried one and now have every machine equipped. Write for list of users and other information.

**W. F. PICKLES, Buckland, Conn.**

We offer a full line of

**COLOURS**

and furnish precise directions on application for

**Beater Dyeing, Staining and Coating**

Half a century's experience enables us to furnish goods answering requirements and to give reliable service

**THE HELLER & MERZ CO.**

BOSTON

CHICAGO

NEW YORK

PHILADELPHIA

SPRINGFIELD, MASS.

# TEXAS GULF SULPHUR

**99½ Per Cent. Pure.**

Produced from one  
of the largest known  
deposits in the world.

**Texas Gulf Sulphur Company**

*General Offices*

41 East 42nd Street, New York, N. Y.

*Sulphur Deposit and Plant, Matagorda  
County, Texas*

# COLLINS MANUFACTURING COMPANY

SAMUEL R. WHITING, Pres. and Treas.

**Manufacturers of**

**LOFT DRIED PAPERS**

**LEDGERS**

**BONDS**

**WRITING PAPERS**

**Mill: North Wilbraham, Mass.**

**Main Office:**

**208 Race Street**

**Holyoke, Mass.**

**If you have trouble from wear  
Trouble from clogging  
Trouble from felt impressions**

try the felt that has been developed through scientific methods of research and testing, the—

## KENWOOD TISSUE FELT

A long series of experiments and tests has designed and woven these felts

—to run with the minimum of clogging, either from stock, from chemicals, or from impurities in water

—to give long wear

—to eliminate felt marks.



Kenwood Tissue Felts give satisfaction because these important factors have been worked out in a harmonious balance.

Users find that Kenwood Tissue Felts require less beating, less pressure on rolls and lower gauge on suction boxes.

**F. C. HUYCK & SONS**

**Kenwood Mills, Albany, N. Y.**

*Manufacturers of Felts and Tan Jackets for All Papers, Boards and Paper Machines.*



# REEL NEWS

We call your attention to the  
various designs of

## Reels

for Book, News and Tissues  
as well as

Straws and Boards

---

*A Reel for every purpose*

---

BELOIT IRON WORKS  
BELOIT, WISCONSIN



MEMBER OF THE A. B. C.

# PAPER TRADE JOURNAL

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY

## FIFTIETH YEAR

PUBLISHED EVERY THURSDAY BY THE

**LOCKWOOD TRADE JOURNAL COMPANY, INC.**

LESLIE R. PALMER, President

J. W. VAN GORDON, Vice-President

Telephone { 2380 }  
              { 2381 } Vanderbilt  
              { 2382 }

10 EAST 39TH ST., N. Y., U. S. A.

Cable Address Catchow. New York

Western Publication Office—431 S. Dearborn Street, Chicago  
New England Office—Room 46, 127 Federal Street Boston  
London Office—Stonhill & Gillis, 58 Shoe Lane

Washington Office—L. M. Lamm, 63 Home Life Bldg.  
Western New England News Office—Michael Connor, Holyoke

*THE PAPER TRADE JOURNAL is the pioneer publication in its field, and has for many years been the recognized Organ of the Paper and Pulp Industry. Its circulation is greater than the combined circulation of all other publications in the field. Entered at New York Post Office as second-class mail matter.*

### Terms of Subscription

UNITED STATES AND MEXICO..... Per year, \$4; 6 months, \$2; 3 months, \$1  
CANADA AND FOREIGN COUNTRIES IN POSTAL UNION..... Per year, \$6  
SINGLE COPIES ..... .10 cents

### Other Publications of Lockwood Trade Journal Company, Inc.

AMERICAN STATIONER AND OFFICE OUTFITTER (Weekly)..... Per year, \$2  
LOCKWOOD'S DIRECTORY OF THE PAPER }  
STATIONERY AND ALLIED TRADES (Annual) } ..... Per copy, \$7

Vol. LXXIV. No. 19

NEW YORK AND CHICAGO

Thursday, May 11, 1922.

## Table of Contents

### News of the Trade:

	PAGE
New Developments in Labor Situation.....	16
St. Croix and Consolidated Withdraw.....	16
Peshtigo Paper Co. Formed.....	17
Paper Situation Improving.....	17
White Rapids Paper Co. to Build Dam.....	17
Service of the A. P. & P. A. Discussed.....	18
To Superintend Champion Coated Mill.....	18
Tylotheta of Chicago Recommends Long List.....	20
Victory Bag Co. Opens in Chicago.....	20
Signs of Improvement in Philadelphia.....	22
Daniel I. Murphy & Co. to Move.....	22
Damage to Fiber Container Co.....	22
Garrett-Buchanan Co. to Build.....	24
Phil Fibre Co. Operating Profitably.....	24
Complication in Dexter Sulphite Case.....	24
Paper Stocks Improve in Montreal.....	26
Boston Firm Incorporates in Canada.....	26
Fire-killed Logs for Pulp.....	26
Kalamazoo Cost Men Meet.....	28
Charles A. Blaney Speaks.....	28
Canadian Paper Exports Decline.....	28
Hartong-Manning Co. to Open.....	28
Becomes Superintendent of White & Wyckoff.....	28
Toronto Paper Business Improves Constantly.....	30
Emergency Dams May Be Erected.....	30
Prairie Paper Mills Get Charter.....	30
Pulp Concern Will Take Hydro Power.....	30
Bids and Awards on Government Paper.....	32
News of Boston Trade.....	32
Paper Makers Meet at Franklin, N. H.....	32
Paper Salesmen Adopt Prayer.....	36
New York Trade Jottings.....	38
A. P. & P. A. Against Duty on Casein.....	45
Paper Men Help Establish Communal Forest.....	45

	PAGE
Laurentide Starts New Generator.....	57
Output of Pulpstones Decreases.....	57
Imports and Exports of Paper and Paper Stock.....	68

### Editorial:

James A. Outterson.....	44
Drying of Paper.....	44

### Technical Section:

Summer Meeting of Canadian Technical Section.....	47
Executive Committee Meets.....	47
A New Development in Waterproof Paper.....	48
Rhineland Paper Co. Opens Chicago Office.....	49
Fuel Oil in Paper Mills of Pacific Coast.....	50
High Head vs. Elevated Breast Roll.....	50
Chemical Composition of Spruce Wood.....	51
Sulphur, Pyrites, in 1920 and 1921.....	54
Tidewater Mills Further Contribution.....	54
Notes on Beating of Paper Pulp.....	55
English for Paper Makers.....	57
Current Paper Trade Literature.....	58
Bibliography of Papermaking for 1921.....	60

### Obituary:

James Andrew Outterson.....	34
Richard F. Knott.....	34
Noah Bryant.....	36

### Market Review:

New York Market Review.....	66
Market Quotations.....	67
Miscellaneous Markets.....	70

Want and For Sale Advertisements, Pages 72, 73 and 74

## LABOR LEADERS MEET PAPER MEN AT MURRAY HILL HOTEL

**Carey's Union Votes to Accept Terms of Manufacturers in Wednesday's Meeting If Proposition Is Acceptable to Unskilled Workers—International Brotherhood of Pulp and Sulphite Workers Deliberate on Acceptance of Plan—Would Mean Complete Submittal to Demands of Manufacturers as Outlined in Previous Meeting—Manufacturers Headed by F. L. Carlisle Stand Firm.**

According to J. T. Carey, President of the International Brotherhood of Papermakers, and spokesman for the skilled workers, the latter have voted to accept the proposition submitted by manufacturers two weeks ago if this arrangement should prove satisfactory to the unskilled workmen, headed by J. P. Burke, President of the International Brotherhood of Pulp and Sulphite Workers.

The effect of this conclusion will mean simply that the unskilled laborers are given the option of accepting the prevailing wages in paper mill localities, or separating from the skilled workers.

Mr. Carey declined to state what the attitude of the skilled workers would be if the unskilled refused to accept the manufacturers' proposal. It was generally understood that the 10 per cent wage reduction and payment of time-and-a-half for overtime clause would be modified if the unskilled men would agree to accept prevailing wages.

At the time of going to press on Wednesday afternoon the latter were convened in secret session at the Murray Hill Hotel.

Mr. Carey stated, "In the vote taken among the skilled men it was decided to accept the manufacturers' proposition on the basis now being worked out if this is satisfactory to the rest of the workmen." It was not generally believed, in view of these developments, that a general strike would be ordered among the union men.

### Spanish River Makes Agreement

It was learned from an unofficial source Wednesday afternoon in New York that the Spanish River Pulp and Paper Mills, Ltd., with main offices at Sault Ste. Marie, had closed a separate agreement with both unions. This agreement, it was stated, covered workmen at all three of the Spanish River Mills, located at Sturgeon Falls, Sault Ste. Marie and Espanola. With a few exceptions, the agreement is reported to be identical with that of the preceding year. It was consummated on May 7.

### St. Croix and Consolidated Withdraw

WATERTOWN, N. Y., May 8, 1922.—Floyd L. Carlisle, president of the St. Regis Paper Company and head of the group of manufacturers dealing with organized labor, explained the report from Albany that the St. Croix and the Consolidated Paper Company had withdrawn from the manufacturers' group and were negotiating a separate agreement with J. T. Carey and labor leaders.

"Yes, they both withdrew and have arranged a conference with labor representatives for May 12," said Mr. Carlisle. "When we consented to accept an agreement to continue the present scale for skilled workmen another year, those two companies could not follow us. They decline to concede the present scale of wages to even skilled men. We were not drastic enough to suit the representatives of those two companies and they are determined to negotiate their own terms."

Mr. Carlisle still claims that the manufacturers will not

reach any agreement that will grant unskilled labor a higher wage than that prevailing in the neighborhoods where the men are employed.

The result of the vote taken by paper mill unions in this section Sunday on the proposition of the manufacturers for the renewal of the working agreement has not been made public. In fact strict secrecy has been counseled and no one has been found to give out a word of definite information. That conflicting votes have been recorded is confidently believed by local leaders interviewed.

"The paper makers have voted to accept the proposition of the manufacturers and the men of the unskilled class have voted to reject the proposal," said a labor leader today. "I have no official information on the subject but I feel that there need be no doubt about the verdict.

"It is regrettable that the manufacturers are taking such a drastic action at this time, just because they find conditions favorable to their success in eliminating the men in the unskilled classification. It is just that sort of treatment that makes I. W. W. converts. It is my belief that ultimately these men will perfect a still stronger organization and when conditions are ripe will make the manufacturers regret their present stand."

The vote of Northern New York locals will not be announced until it is given out by the leaders at the conference Wednesday.

### I. P. to Establish Hydro-Electric Plant

According to reports, the International Paper Company is preparing to enter the utility field in the establishment of several hydro-electric power plants. The purpose is to utilize such plants for the sale of electric power for commercial consumption.

It is understood that to this end, several plants owned by the International in the United States for the production of paper will be eliminated, while additional new sites will be secured in Canada. At the recent annual meeting of the company, President Philip T. Dodge is quoted as making the following remarks:

"In some ways it is quite certain that in some cases production and sale of electricity will afford a better return on the investment than the production of paper."

The first of these proposed power plants is now under construction at Sherman Island, situated near the source of the Hudson River. It will have an initial capacity of 20,000 horsepower. It was further stated that the International Paper Company is operating at the present time three small hydro-electric plants near Watertown, N. Y., on the Black River. These plants were converted from paper mills.

Plans along this line of development have been under consideration for some time. The company has secured a large interest in the potential water power at Grand Falls, N. B., the power being estimated between 35,000 and 40,000 horse-power.

### New Glazed Paper Mill for Great Barrington

[FROM OUR REGULAR CORRESPONDENT.]

GREAT BARRINGTON, Mass., May 8, 1922.—Great Barrington is to have a new glazed paper mill. This company will be known as the Berkshire Coated Paper Company. It is expected that the machinery necessary to start operations will arrive this week. Jeremiah H. Whitehouse, for many years superintendent of the Springfield Glazed Paper Company, will be the superintendent of the mill and his son Harold, now a professor at Syracuse University, will be his assistant. Constant Southworth of the Hampden Paper Company is financially interested in the company and will have charge of the sales department. The company will be capitalized for \$75,000. The operations of the company will be carried on in the old stone mill which it recently purchased. About 30 hands will be employed at the start.



## PESHTIGO PAPER CO. FORMED WITH CAPITAL OF \$2,000,000

**New Concern Will Take Over the Business of the Peshtigo Pulp & Paper Co. and the Peshtigo Fibre Co.—Expansion of Both Plants to Be Started as Soon as Details of the Reorganization Are Completed—Fox River Valley Paper Manufacturers State That the Situation Is Improving—Stevens Point Pulp & Paper Co. to Resume Operations May 15—White Rapids Paper Co. to Build Dam.**

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., May 9, 1922.—A new corporation, known as the Peshtigo Paper Company, with a capital of \$2,000,000, was organized May 2 at a meeting of stockholders of the Peshtigo Pulp & Paper Company, and the Peshtigo Fiber Company, to take over the business and assets of both organizations. John G. Sutherland, Dayton, Ohio, associated with the Mead interests, and vice-president of the Escanaba Paper Company, will be manager of the new concern. It will require about 30 days to perfect details of the reorganization.

About \$900,000 in new capital will be put into the company. Improvements aggregating \$650,000 are contemplated, of which about \$300,000 will be expended this year to improve and enlarge the fiber and paper plants.

Plans for organizing the new corporation were made at a meeting of creditors of the Peshtigo Fibre Company, April 20, when a committee was appointed to arrange the details. Reports at the meeting showed that the fiber company had sustained considerable loss and impairment of its capital, while the paper company had sustained a moderate loss of operation. It was pointed out in letters to creditors, following the meeting, that foreclosure of the company would be an unsatisfactory way of squaring accounts, and creditors were urged to accept Class A preferred stock in the new corporation in the amount due them. One share of common stock of no par value also will be given to creditors of the fiber company for each share of preferred stock received by them.

Class A preferred stock also will be given to stockholders of the Peshtigo Pulp and Paper Company, while Class B stock will be given to fiber company stockholders. In addition, the stockholders of both companies will receive common stock of no par value.

### Both Plants to Be Enlarged

Expansion of the two plants will be started as soon as details of reorganization are completed, it was said by Mr. Sutherland. It is proposed to make the tissue mill one of the largest in the country, and the pulp mill will be enlarged to increase its capacity and to effect economies. It was stated in letters to creditors that improvements under contemplation would make the two plants a complete operating unit to effect economies of about \$200,000 a year.

Among the plans for the fiber plant are construction of a new bleach building, 52 by 85 feet, three stories high; 50-foot extension to boiler room and installation of two new 400-horsepower boilers; construction of another smokestack of either steel or concrete; small building to house electrical equipment of the fiber mill; additional storage tanks and screens; installation of a 750 K.V.A. steel turbine to stabilize power in high and low water.

The capacity of the fiber plant will be increased to about 15,000 tons a year, which will provide a surplus of about 20 tons a day more than the paper plant uses. Enlargement of the latter plant, however, will take this surplus in the near future.

It is planned to build a pipe line from the fiber to the paper mill to transport pulp. It is said this alone will save \$5 a ton in the cost of pulp used at the paper mill.

Other improvements in the paper mill include installation of another paper machine, two new stone beaters and enlargement of the

mill building. It is quite likely that installation of the paper machine and enlargement of the mill will be deferred until next year.

Improvements to be made in 1922 will cost approximately \$300,000, and the work in 1923 and thereafter included in the present plans will cost \$350,000 more, it was said.

It was stated in letters to creditors that the new corporation, after the financing which it is contemplating, will have no current liabilities, will have a working capital of approximately \$300,000 and a line of credit at the banks of about \$300,000.

### Paper Situation Improving

Fox River Valley paper manufacturers, in interviews granted last week, are taking a hopeful view of the situation in the industry. One of the largest manufacturers in the middle west said developments the last few weeks have given him more encouragement than he has received at any time since the break in the paper market more than a year ago.

Two of the most hopeful signs, he said, was the increasing consumption of news print and writing paper. More news print was used in the first four months of 1922 than in any similar period in the last two years. The market for box board also is increasing.

Paper mills still are taking losses because of low paper prices brought about by the keen competition, but many of the manufacturers are willing to take work at any figure which will land the business. Based on the present cost of manufacture, prices are much too low, the mill owner said.

There is no expectation of an increase in paper prices, but mill men hope that additional economies in manufacture can be effected. They look for lower freight rates and coal prices to cut down their production costs.

Lack of confidence that business is returning to normalcy is blamed for the hand-to-mouth policy of jobbers, who are buying in very small quantities. There has been some disposition recently, however, to stock up in writing papers, and manufacturers are hopeful that this increased confidence will be transmitted to other paper products.

More men have been employed by some of the mills in Neenah and Menasha, and others are increasing their output rather considerably.

### Stevens Point Paper Co. to Resume

The Stevens Point Pulp and Paper Company at McDill, which has been closed down since December 1, 1921, will resume operations with about 75 men on May 15. The crews will work day and night shifts. It may require several days after May 15 to get all departments operating.

### White Rapids Paper Co. to Build Dam

Application has been made to the United States Power Commission in Washington, under the Federal Power Act, by the White Rapids Paper Company, whose organization was announced in the PAPER TRADE JOURNAL a few weeks ago, for permission to construct a dam 42 feet high in the Menominee River, near Swanson, Mich. About 10,000 horsepower will be developed under the project, it is said.

Officers of the company have been reluctant to discuss their plans, but it is understood that a paper and pulp mill is under contemplation. The paper company was organized a few weeks ago to take over waterpower property and considerable land which has been owned by several Oshkosh and Appleton men for many years.

### Nashua Workers Return on Reduced Wage Scale

[FROM OUR REGULAR CORRESPONDENT]

NASHUA, N. H., May 6, 1922.—Two hundred workers at Mill No. 2, of the Nashua Gummed and Coated Paper Company, on strike since April 1 in protest against a ten per cent wage cut, have voted to return to work at the reduced wages Monday morning. The mill was closed for ten days.

## SERVICE OF THE A. P. & P. A. DISCUSSED AT WATERTOWN

**Dr. Hugh P. Baker Executive Secretary at Luncheon-Conference of Representative Paper Men Outlines Recent Important Accomplishments of the Organization—Says that While Great Progress Has Been Made Much Still Remains to Be Done—Frank L. Moore, Who Presides, Pays a Well Deserved Tribute to the Work of the Association in the Past Forty-five Years.**

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., May 8, 1922.—More than twenty paper manufacturers of the Black River region attended a luncheon-conference Friday of last week, of members of the American Paper and Pulp Association with Dr. Hugh P. Baker, executive secretary of the association and other leaders in the industry, to discuss means by which the Association can be of more direct service to the mills.

### Frank L. Moore Presides

Frank L. Moore, former president of the association presided, and told of his belief in the association and its work, as carried out for forty-five years.

"The association has stood for the industry as a whole for many years," he said, "and as one of the oldest trade associations in American industry, has done great things to coordinate the activities of the individual mills, for the good of the industry as a whole."

### Remarks by Dr. Baker

"The association," said Dr. Baker, "has accomplished much for the industry, but there is more yet to be done. One great need of this as well as of other industries, is to get and hold export markets. Only an organization representing the industry as a whole can do this work effectively, and it is for this purpose in part, that I shall spend two months abroad this summer, with George W. Sisson, Jr., of Potsdam, former president of the American Paper and Pulp Association, studying the industry in foreign lands, so that we in America may know what conditions we shall have to meet in our efforts to improve the condition of our industry at home.

"It is part of this movement also which led to the efforts of the American Paper and Pulp Association to have a paper division established, as was eventually done, in the Bureau of Foreign and Domestic Commerce at Washington. This division's chief object is to assist in developing our trade abroad, as well as to aid the industry at home, by such service as the government can give.

"This was one of the outstanding accomplishments of the paper industry during the last year. The association made a most favorable impression in the matter of a tariff, by getting together all of the affiliated associations in a single presentation of the needs of the industry as a whole.

"Another important development of the year was the establishment of the Information Service, which is serving as a clearing house for statistical and informational material within and without the industry.

"The work of the Woodlands Section, which is just starting its second year, has been of great value, particularly in securing seasonal statistics relative to the pulpwood situation. There has been such a call for the material collected by this section that it has been found necessary to publish and sell at a small price, pamphlets containing the information developed by this section, though of course the members of the association receive all this material as an association service.

"A few months ago the protests against the pollution of New York harbor water by oil resulted in the introduction into Congress of legislation which would close a large proportion of the nation's paper mills. The association filed a protest against hasty action, and joined Secretary Hoover in asking investigation to determine the proper legislation which should be passed to meet existing conditions.

"The association has led American industry in a campaign to secure national forestry legislation, and it was under Mr. Moore as chairman of the committee that this work was initiated. Studies of means of preventing pulp and wood decay have been stimulated, and cooperation established through a special committee, with the United States Bureau of Standards.

"Closer coordination of the Technical, Cost, Superintendents and Salesmen's associations to serve the entire industry has been accomplished during the year, and these are only a few selected examples of the work that is being done for the industry as a whole by the federated organization."

### O. B. Towne Speaks

O. B. Towne, secretary of the Waxed, Vegetable Parchment, Glassine and Greaseproof associations was another speaker, discussing various activities by which trade associations are of service to their members.

### Among Those Present

Those present at the conference besides Dr. Baker and Mr. Moore were: James E. and C. W. Campbell, of the Dexter Sulphite Pulp and Paper Company; S. A. Upham, G. F. Clark and H. J. Prankard, of the Brownville Paper Company; F. M. Boyer and J. J. Warren, Harmon Paper Company; J. M. Gamble, Brownville Board; J. V. Baron, Sherman Paper Company; C. C. Burns, St. Regis Paper Company; Charles W. Pratt, Island Paper Company; H. P. Gould, Gould Paper Company; M. S. Wilder, Diana Paper Company; B. B. Taggart and J. F. Amos, Taggart Brothers Company; G. W. Knowlton, W. H. Howes and G. S. Knowlton, Knowlton Brothers, Inc.; S. M. Wardwell and E. B. Sterling, West End Paper Company; Guy Jones and Dr. David Balmat, Carthage Sulphite Pulp and Paper Company; Rufus Sisson, Racquette River Paper Company; A. R. Cornwall, Malone Paper Company; Joseph Wright, Champion Paper Company; Mr. Dinkelspiel, Northern Paper Products Company; Attorney A. D. Van Allen, of Carthage, and Attorney E. N. Smith, of this city.

### To Superintend Champion Coated Mill

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, O., May 8, 1922.—Homer C. Ferguson, former manager of the Bureau of Standards and Inspections at the Champion Coated Paper Company's plant in Hamilton, has just assumed the superintendency of this mill, the largest of its kind in the country devoted to the manufacture of coated paper.

Mr. Ferguson assumed his duties on the retirement of William Schenck, who has served as superintendent for several years, after having worked his way up through the various departments.

Mr. Ferguson started in the finishing room of the mill fifteen years ago and has made consistent progress. One year ago he was transferred to the Bureau of Standards and Inspections for the three mills—the two paper plants and the coating mill. Thus he became acquainted with all of the details of the work throughout the plant, and it was the opinion of the management that he was well qualified to assume the superintendency, which was tendered to him as a deserved promotion.

There is no doubt of Mr. Ferguson's popularity in the plant, according to Hamiltonians, and his promotion doubtless meets with the full approval of the working force.

# May We Quote?

---

We are now booking tonnage for first open water shipment as well as for shipments for balance of the year 1922

**WELL KNOWN SCANDINAVIAN**

Unbleached and Easy Bleaching

## SULPHATES

Unbleached—Easy Bleaching—Bleached  
ALSO

**MITSCHERLICH**

## SULPHITES

*Let Us Quote You Our Prices!*

# A. J. PAGEL & CO., Inc.

347 Madison Avenue

New York City

## TYPOTHETÆ OF CHICAGO RECOMMENDS LONG LIST

**Resolution Will Be Presented and Voted On at a Meeting That Is to Be Held in Chicago May 25—Annual Meeting of the Middle States Wrapping Paper Association to Be Held May 11-12—Central States Wrapping Paper Association to Hold Annual Meeting at Pittsburgh, May 16—Sales Department of the Chicago Paper Co. Holds Monthly Meeting at the City Club.**

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, May 8, 1922.—With a vote of 11 yeas and 3 noes, a meeting of the combined Trade Relations and Auxiliary Long Price List Committees of the Franklin Typothetæ of Chicago, held May 5, passed a resolution to recommend to members of the association the adoption of the long list. This is the first concrete action which the Chicago printing trades have taken regarding the paper price list subject. It was brought before the association at a meeting last March for a vote, but voted back to the committees. The Typothetæ will hold a meeting May 25, in Chicago, when the resolution recommending the long list adoption will be presented and a vote taken.

### Middle States Wrapping Men to Meet

The annual meeting of the Middle States Wrapping Paper Association was announced by C. K. Higgins, secretary, with offices in the Conway Building, Chicago, to be held Thursday and Friday, May 11 and 12, at West Bayden, Ind. The annual election of officers will take place at this meeting. A feature of the convention will be moving pictures of the paper industry.

The annual meeting and election of officers of the Central States Wrapping Paper Association, at Pittsburgh, Pa., was also announced by Mr. Higgins. The meeting will be held May 16, at the Athletic Club, Pittsburgh.

### Chicago Paper Co. Meets

The monthly sales department meeting of the Chicago Paper Company was held at the City Club, Chicago, Friday evening, May 5, with close to fifty representatives of the firm, from all territories, in attendance. Various topics were taken up, covering sales program and future prospects for business. A discussion of general business conditions was also entered into. The speaker of the evening was John Clayton, who gave a very interesting talk on advertising and selling.

### Victory Bag Co. Opens in Chicago

The Victory Bag and Paper Company, of Marinette, Wis., has opened an office and warehouse at 209 West Illinois street, Chicago, which will be operated under the management of A. J. Pareira. This office and warehouse is being opened in Chicago to give the trade in surrounding territory, adjacent to Chicago, better service. A full stock of the company's lines will be carried at this branch, which will make a specialty of handling "Kant Tear," a product of this firm, which comes packed in indestructible fiber cases. Salesmen covering Chicago and vicinity will travel out of the newly established offices.

### Paper Men in Printers Golf Association

Noble T. Gillet, of the Chicago Paper Company, was elected a director of the Printing Trades Golf Association of Chicago, at a meeting held at the City Club, May 3. The club now has 66 charter members, which will be gradually added to until the number reaches 150. The first tournament will be held June 15, at Olympia Fields. Other paper men of Chicago identified with the club as charter members are: J. C. Reynolds, West Virginia Pulp & Paper Company; W. E. Scott, Whitaker Paper Company; George M. Seaman, Seaman

Paper Company; Henry T. Smith, Bradner-Smith Paper Company; H. F. Struble, the Berkshire Company; John D. Swigart, Swigart Paper Company; Douglas Wray, Douglas Wray Paper Company; R. A. Van Vlack, Moser Paper Company; W. A. Tucker, Paperker Thomas & Tucker; William Plant, Plant, Theis & Gould Paper Company; Fred E. Blunden, of Blunden, Lyon Company; Jos. A. Borden, American Writing Paper Company, and J. F. Butler, J. W. Butler Paper Company.

### Bargain Paper House Changes

J. R. Ferguson has been elected president of the Bargain Paper House, succeeding Louis Dwyer, resigned. Mr. Ferguson has been identified with the firm for a little over a year, in charge of management. He was formerly with the Seaman Paper Company. Porter Andrews and John F. Crittenden are two new salesmen for this house. Mr. Andrews was formerly with the Whitaker Paper Company, and Mr. Crittenden was identified with the Fort Dearborn Paper Company. Since resigning as president of the Bargain Paper House, Mr. Dwyer, with a brother, Frank J. Dwyer, has incorporated a company now located at 344 North Canal street.

### General News of the Trade

M. Raginsky, C. W. Vacca and Oscar M. Mudelman are the officers of a recently incorporated company to manufacture and deal in paper bags. The new firm has been granted a charter under the title, the Service Paper Bag Corporation. They have located at 814 West Forty-seventh street, Chicago, and are capitalized at \$18,000.

Joseph A. Borden, of the American Writing Paper Company, has mapped out an itinerary which will carry him through the south and west during May and June, touching at such cities as New Orleans, Houston, Los Angeles, Seattle, and Portland.

The Dragon Embossing Cover and Neapolitan Antique Laid are two new cover papers which the James P. White Paper Company has added to its stock recently.

### Beaver Board Companies' New Plan

A modification of the Beaver Board Companies' plan has been announced by its managers and committees. Under the modified plan the bank and merchandise creditors of the holding company and its subsidiaries, instead of receiving payment for their claims in the manner provided in the original plan, will accept on varying bases from 50 to 20 per cent of the new 8 per cent. collateral trust gold notes of the new holding company.

Interest on the extended debt is also to be paid in the new 8 per cent. gold notes. That change, although not as favorable to the creditors as the original plan, has been approved in the interest of the general situation by the advisory committee representing bank and merchandise creditors of the companies and certain of its subsidiaries.

Although creditors have an opportunity to withdraw on the terms within the time provided in the plan, it is not anticipated that there will be any such withdrawal, as the modified plan is preferable to liquidation by receivership, the only other alternative. The change is desirable from the point of view of the stockholders and 8 per cent. gold note holders, as it preserves to the company its working capital about \$1,300,000.

Holders of more than 80 per cent of the companies' outstanding gold notes and more than 90 per cent of its first preferred and common stock have deposited, or agreed to deposit them, and the reorganization managers anticipate that if substantially all the outstanding balance of securities be obtained promptly, the plan will soon be declared operative.

There is no intention, however, of permitting securities which do not come into the reorganization to profit at the expense of those who do, and unless substantially all the securities are deposited by May 15, within which time deposits will be received under the plan, it may still be necessary to apply for the appointment of a receiver to determine the rights of the non-assenting interests.



# "National" News



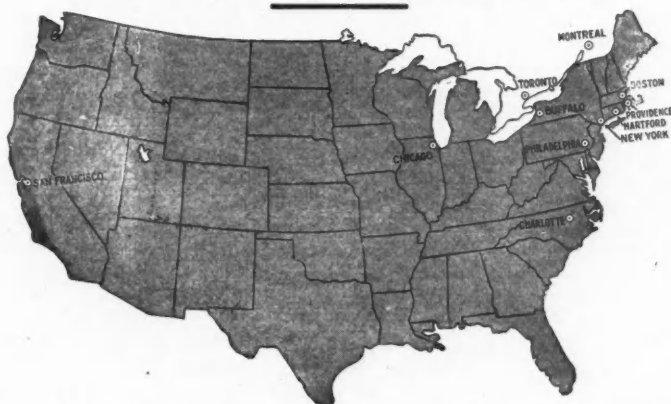
OF INTEREST TO DYERS AND THE COLOR USING INDUSTRIES IN GENERAL

Prepared by the

NATIONAL ANILINE & CHEMICAL COMPANY, INC.

## Quick-Action is a Part of the "National" Plan

*Our conveniently located warehouse branches and laboratories promise close cooperation and prompt technical aid*



Service, in the "National" sense, must be always ready. Nine-tenths of service is promptness. This is equally true whether in relation to the shipment of dyestuffs or to overcoming technical difficulties in dyeing operations.

The readiness which is part of "National" Service and which makes it worth while to our customers, is due largely to the fact that we maintain branch offices at the important centers of the dye consuming industries.

These district offices, each with ample stocks of dyestuffs and completely equipped, are located in the following cities:

*New England*—Boston, Hartford

*Middle Atlantic States*—New York, Philadelphia

*Canada*—Toronto, Montreal

*Southern States*—Charlotte

*Middle West*—Chicago

*Far West*—San Francisco

### Wall-Paper Color Lakes

Lakes Occupy Important Place in Manufacture of High-Grade Printed Wall-Papers

To the maker of wall-papers who manufactures his own lakes, the "National" offers a wide choice of dyes of excellent solubility, easy application and good permanency. The dyes, selected for this special work, are easily and completely precipitated on the bases commonly in use. Their complete range enables the user to produce the most delicate tints as well as heavy shades.

Special problems are cheerfully worked out in our laboratories and product samples and prices together with necessary instructions are freely offered to our customers.

### Coloring of Bond Papers

"National" Prepared to Suggest the Right Dye For Every Use

The selection of the right dyestuffs—always important for any kind of paper—is particularly so in high-grade bond papers where their qualities must correspond with the excellence of the other raw materials entering into the finished product.

For this class of paper, therefore, the manufacturer demands dyes that yield clear shades of good fastness, as economically as possible, and at the same time will produce uniform shades on both sides of the sheet.

It is at this point that "National" Service to paper-makers finds a valuable field of usefulness. Careful tests

### Special Effect Wall-Papers

Direct Dyes Most Used For Stipple and Oatmeal Effects

To secure the best results in contrasted effects, where dark mottlings are desired on light backgrounds and where light sawdust spottings are wanted on dark backgrounds, carefully selected dyes must be used which will not run or bleed one into another.

Direct dyes are in the greatest demand for these purposes, as they will not bleed, are sufficiently fast to light, and exhaust well.

The "National" offers a wide line of direct dyes for these purposes, of which the following are some of the most satisfactory and popular.

- National Erie Yellow 2 RFP*
- National Chrysophenine YP*
- National Erie Fast Orange AP*
- National Erie Fast Orange CGP*
- National Erie Brown CNP*
- National Erie Fast Brown GRP*
- National Erie Pink BBP*
- National Erie Benzo 4 BP*
- National Erie Fast Scarlet YAP*
- National Erie Fast Scarlet 4 BAP*
- National Erie Fast Scarlet 8 BAP*
- National Erie Violet 3 RP*
- National Niagara Blue BBP*
- National Niagara Blue HFP*
- National Niagara Sky Blue 6 BP*
- National Erie Green GP*
- National Erie Black CP*

The technical staff of this Company stands ready to consult with paper mills and to offer its expert advice as to the right dyes to use, alone or in combination, in order to get the result sought.

under manufacturing conditions have been made and records kept of the various properties peculiar to each of the "National" dyes in the Acid, Basic and Direct groups. We are prepared to suggest the right dye for every use.

Inquiries from bond paper manufacturers will immediately and cheerfully bring such information as we have at our disposal. Further than that our paper laboratory and technical staff will co-operate with you in determining the "National" dye which best satisfies the particular requirement.

*After May 1st this Company will be located at its new quarters—40 Rector St., New York—where it will have greater floor space and better facilities for handling its business.*

## MANY SIGNS OF IMPROVEMENT IN THE PHILADELPHIA TRADE

**Mills Running More Actively and Various Paper Concerns Making Improvements, All of Which Point to Better Times—D. L. Ward Co. to Reoccupy Former Building at Sixth and Ranstead Streets—Typothetae Requests Members of Philadelphia Who Recently Resigned from That Organization to Reconsider Action—Daniel I. Murphy & Co. to Move to New Quarters.**

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., May 9, 1922.—Various incidents forecast future activity. Out in Manayunk the Philadelphia Paper Manufacturing Company has all its machines running and reports that its new 150-ton machine will soon be started. During the week, and for the first time this year, all four machines in the plant of W. C. Hamilton & Sons at Miquon, on the Schuylkill, were run full time. The Garrett-Buchanan Company, which recently increased its capitalization from \$100,000 to \$1,000,000, is about to begin a material expansion, the better to cope with increased business. But the development which excited most trade interest was the appearance of artisans in the building at Sixth and Ranstead streets, lately occupied by the D. L. Ward Company, and their beginning of the construction of a landing platform on the Ranstead Street side exactly as it was three or four years ago, when the Ward Company carried most of its stock in this building. Their appearance was followed shortly after by the announcement of an executive of the company that it was about to return to its old home, and confirmation of this statement came authoritatively from the D. L. Ward Company. The firm states that it will return to the building it previously occupied on South Sixth Street on June 1 and that the necessary alterations now are under way to that end. It will be the policy of the firm to confine its business, so far as the wrapping paper end is concerned, to standard line, discarding a number of duplicating specialties. Its fine paper line will in no wise be restricted, but actually will be expanded. Under the concentration possible because of the change in the coarse paper division the firm will be able to carry under one roof all its extensive open stocks of paper. This will assist materially in speeding up the delivery of small orders from stock, known in trade parlance as "waiting orders." The firm is in receipt of many communications from printers who, while admitting the superior degree of service which recently has been given, believe that all would benefit through the establishment of closer contact by the re-location of the firm's executives and stock in the paper district. President George Ward personally is visiting many of his trade and everywhere has met with a warm welcome.

### Matter of the Long Price List

The Typothetae, replying to the letters of resignation sent by the paper houses recently, said: "We note that your action seems prompted by your fear of legal consequences.

"We have the opinion of able counsel that the issuance of a retail price-list is in no way illegal; the opinion is long and cannot conveniently be incorporated in this letter, but a copy of it has been mailed the chairman of your association, Mr. Allen E. Whiting.

"We feel, therefore, that in view of this opinion you may wish to reconsider your resignation. You may be assured that the printers who are members of our Typothetae are just as unwilling to take any action which would involve legal consequences as you would be.

"Why not obtain an opinion from your own counsel upon the point? Hardware, plumbing supplies, and, in fact, almost every other line, is listed differently for wholesalers, retailers and users, and, as far as we know, the legality has never been questioned.

"Do you know that the Typothetae of Philadelphia since March is

an incorporated body and your responsibility and status is no longer individual? If you decide to reconsider, we could not accept dues in advance at this time, and if you find yourselves out of sympathy with our retail price-list program, which we feel bound to continue, we would not care to accept a contribution to our work.

"In either case, therefore, we have no choice but to return your check.

"As our activities are, in the main, of mutual interest, we hope it will be possible for us to continue to work together."

### Wilcox, Walter, Furlong Paper Co.

Announcement is made by the newly-organized Wilcox, Walter Furlong Paper Company, with offices at 231 Chestnut Street, that it is carrying the Valley line of products and that it already has enjoyed a most satisfactory volume of business, even when there is discounted a large number of complimentary orders which came to it when its members set up in business on their own account. In the trade the announcement that the company would handle the Valley line was received with very much interest. The Valley products were distributed formerly through the States Paper Company until its dissolution a year ago, when all its stock was taken over by the D. L. Ward Company.

### W. H. Dobbins & Co. Activities

W. H. Dobbins, & Company, located at 48 North Front Street, and for 40 years engaged in the paper and stationery in a general jobbing way, are making arrangements for the purpose of engaging more largely in the direct mill order business in wrapping papers. Hereafter the present proprietor, E. Y. Dobbins, will give his entire time to mill account business and volume sales of coarse papers and of envelopes, and will occupy the second and third floors of the warehouse which he owns, having sublet the other floor. The business was established two score years ago by W. H. Dobbins, his father, and G. W. Dobbins, his uncle. He entered into the business fifteen years ago. W. B. Love, formerly on the sales force, has accepted a position with the Huff Paper Company.

### Daniel I. Murphy & Co. to Move

Daniel I. Murphy & Company, 234-236 North Front Street, shortly will remove from that warehouse and will take executive offices in the Brown Brothers Building, Fourth and Chestnut Streets. The firm proposes to have its packing done outside under contract. The North Front Street warehouse recently changed ownership, necessitating the removal of the firm, and it was therefore decided to make a change in the character of its business to the extent of having outsiders take care of the packing and storage of stock.

### Damage to Fibre Container Co.

Inventories of the damage done by fire to the plant of the Fibre Container Company, of which the Philadelphia Paper Manufacturing Company is the parent organization, indicate that the loss will not exceed previously made estimates of from \$500,000 to \$750,000, and that it is covered by insurance. The company proposes immediately to begin the restoration of the three sections of the Container plant, which was destroyed. All the boxboard machines in the plant of the Philadelphia Paper Manufacturing Company now are running to full capacity and it is the intention of the firm in the immediate future to start production on its 150-ton-a-day boxboard machine, which escaped damage from the fire.

### Creditors of Lowe Paper Co. to Meet

Creditors of the defunct Lowe Paper Company, formerly located on Chestnut street, below Third, have received letters from the attorney, T. Ewing Montgomery, of Reber, Montgomery & Granger, 1001 Chestnut street, representing A. A. Saxon, a dealer in paper novelties at 58 North Second street, asking that they arrange for a joint meeting for the purpose of taking concerted action looking towards bankruptcy or other proceedings which will best protect their interests and those of the trade in general. It was upon the

(Continued on page 24)

# 3

## *Functions of the Bird Save-All*

- 1** It saves pulp.
- 2** It detects leaks.
- 3** It filters white water.

The BIRD SAVE-ALL does these three things well, in a practical, commonsense way.

The purchase price is low and the cost of operation negligible.

Let us send you the Save-All Bulletin.

**BIRD MACHINE COMPANY**  
South Walpole, Massachusetts

*Western Representative:*  
T. H. Savery, Jr.,  
1718 Republic Bldg.,  
Chicago, Ill.

*Canadian Builders of Bird Machinery:*  
Canadian Ingersoll-Rand Co., Ltd.,  
260 St. James St.,  
Montreal, Quebec.

88-214

---

# BIRD SAVE-ALL

---

## MANY SIGNS OF IMPROVEMENT IN PHILADELPHIA MARKET

(Continued from page 22)

initiative of Mr. Saxon that, in October last, a Sheriff's writ was issued and the effects of the Lowe Company were sold out. Meanwhile, it is reported that the proprietor has re-engaged in business. Before the war he was a member of the firm of the Keystone Paper Company, in partnership with M. L. MacCauley. Both went into business after their return, Mr. Lowe again entering the paper business, trading as the Lowe Paper Company, with headquarters at Bank street, above Chestnut street, and subsequently on Chestnut street, near Third, and finally for a very limited time under a new name on Strawberry street.

### Garrett-Buchanan Co. to Erect Building

A combination garage and storage warehouse for wrapping papers shortly is to be erected by the Garrett-Buchanan Company on two of its South Marshall street frontages and on the premises formerly occupied by the rear of the old Megargee-Hare warehouse. Plans have been completed for the construction of a five-story brick and concrete building, fireproof and of great strength, the first floor to be used for shipping by day and as a garage by night. Immense concrete columns will carry the upper floors, leaving the first largely an open space, 40 by 61 feet, wherein the firm will be able to load and unload in security in all kinds of weather, both its auto trucks and team deliveries. It is proposed to house the six autos here at night and thereby to enable them to be loaded in the late afternoon for delivery at the opening hours of business in the morning. The firm has recently enjoyed a very marked increase in business, and, even though shipping facilities on its South Marshall street frontages with the large overhanging awnings have been excellent, they are now becoming inadequate and for that purpose plans for the new structure were developed. The firm is giving particular attention to the development of two of its departments. These are, the Seconds, for the distribution of enamel papers, known respectively as the Eastern and the Western, which are offered at prices far below those of regular grade. The department is in charge of Joseph H. Miller, who is also looking after the cover papers. The other department, the cardboard, in charge of Edwin Keller, is featuring a coated line and also the Garrett-Buchanan high-grade index board. The firm reports a very large distribution of the duplex envelopes made by the Duplex Envelope Company of Quincy, Ill.

### Phil Fibre Co. Operating Profitably

Receiver Beves, of the Phil Fibre Company, which recently became financially embarrassed, reports that the business has been restored to a profitable basis and that, subject, of course, to the order of the court under which the receivers are operating, it will be continued indefinitely. The boxboard machine is operating now on a basis of 20 tons and the firm has quite a number of orders in advance.

### Auer & Twitchell Changes

Announcement is made by Auer & Twitchell, whose headquarters are in the city, of the removal of its New York branch office from the Fifth Avenue Building to the Canadian-Pacific Building at 342-Madison avenue. The New York office will continue under the management of Milton MacCauley, and J. F. Auer will spend the first three days of the week in the New York branch, the remainder of the time to be confined to the Philadelphia headquarters at The Consolidated Paper Tube Company, which is owned by the Auer & Twitchell concern. The New York sales will be chiefly paperboard and general paper, such as toiles, towels, glassine and parchment. Earl Twitchell will not be active in the New York branch and will continue as treasurer of the Auer & Twitchell Company, with his headquarters in the Drexel Building. He will supervise the fiber and webbing branch of the business.

### Transfers Building to General Paper Goods Co.

A transfer was reported during the week by the Gatti-McQuade

Company of the two three-story warehouses at 606 to 612 North American street, running through to Bodine street in the rear, and occupying a lot 91 by 99 feet, to the General Paper Goods Company. The Paper Goods Company in turn conveyed the property to the East River National Bank of New York. Stamps on the deed indicate a consideration of \$100,000. The buildings are assessed at \$60,000, and their conveyance was subject to a mortgage of \$18,000 and a ground rent of \$55. The changes are incident to the recently announced financial embarrassment of the company, but announcement is made that the Philadelphia business will continue, as in the past, under the management of Egbert Farr.

Schwartz & Company, dealers in coarse paper and twine and in folding boxes, and owned by Samuel Schwartz, are now installed in new quarters at 3 Bank street, into which the firm removed from 215 Church street.

### General News of the Trade

John O'Leary, formerly with D. I. Murphy & Sons, and who recently engaged in the paperstock brokerage business on his own account, has opened an office at 48 North Front Street.

The Paper House of Pennsylvania, preparing for largely increased business, has just installed a new 56-inch Seybold cutter.

A. S. Datz & Sons, South Marshall and Market Streets, have completed installation of a new 45-inch Beck sheeter machine and a 52-inch type 8-F Cameron slitter, and the firm is therefore prepared to do all kinds of sheeting and slitting for the paper and paper box trade.

The "Made in Philadelphia" signs, with which E. Latimer, Jr., 126 North Fourth street, is placarding all his homemade goods, as part of the movement to boost Philadelphia preparatory to the Sesqui-Centennial, were carried during the week into Canada on a large order which he received from across the border.

### Complication in Dexter Sulphite Case

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., May 8, 1922.—Another complication has just been injected into the already much entangled legal controversy between William R. Hearst and Dr. James E. Campbell and Dr. Clarence W. Campbell of the Dexter Sulphite Pulp and Paper Company.

To the layman the technicalities of developments are so intricate that it is difficult to follow them, but to the clever lawyers in the case they appear to be strategic manoeuvres.

The Dexter Sulphite Pulp and Paper Company brought action against William Randolph Hearst, James E., Clarence W. Campbell and the Dexter Sulphite Pulp and Paper Corporation. The Campbell Brothers as defendants served on Mr. Hearst as a co-defendant answers in the action. In the new move Mr. Hearst has made a motion to set aside the service of the answers of the Campbell Brothers upon him as being improper and unauthorized on the grounds that they admit in their answers the allegations of the complaint and purport to set up the identical allegations in said complaint.

The legal battle grows out of the purchase of the Dexter property by Mr. Hearst for \$3,500,000 and his action to withdraw from the contract on the grounds of fraud. The Campbell Brothers brought action to compel fulfillment of the contract.

The latest case will be returnable before Justice C. R. Alverson in Jefferson County Supreme Court on May 6. It will come before Justice Cheney because of the absence of Justice Alverson at that term. Nathan Burkan, former Senator E. T. Bracket and Cobb, Cosgrove & Kimball appear for Mr. Hearst and former Senator E. R. Brown, Purcell, Cullen & Pitcher and Hocker & Hooker appear for the Campbells.

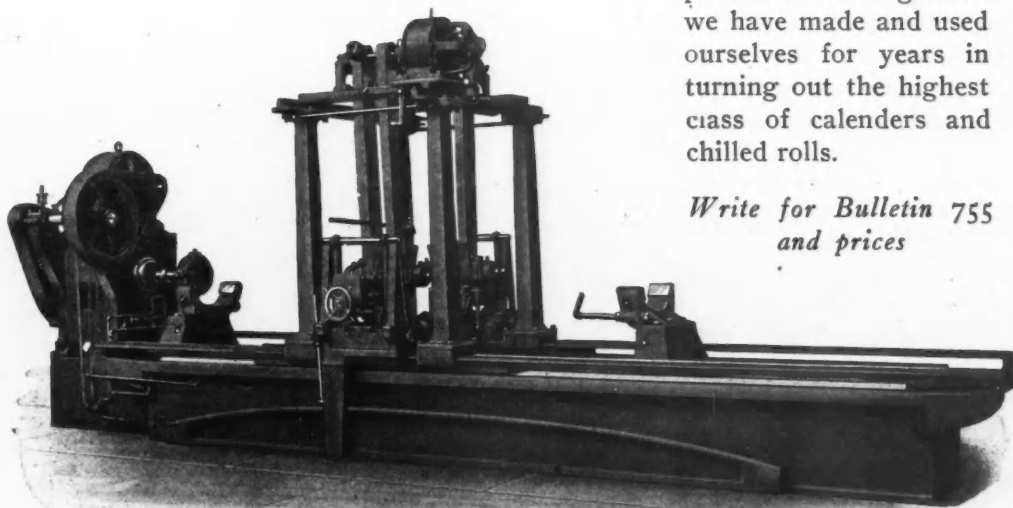


# Roll Grinders

---

For the sake of your product regrind your old Farrel rolls, or any others, on this heavy, sturdy instrument of precision—a roll grinder we have made and used ourselves for years in turning out the highest class of calenders and chilled rolls.

*Write for Bulletin 755  
and prices*



**Farrel Foundry & Machine Company**

*Established 1848*

**Ansonia, Conn.**

*Branch Plant:*  
**BUFFALO, N. Y.**

## PAPER STOCKS IMPROVING ON MONTREAL EXCHANGE

Careful Analysis of the News Print Situation Shows That There Is Ground for the Optimism That Is Beginning to Prevail—Prediction Is Made by Men in Close Touch With the Situation That the Third Quarter of the Year Will See at Least \$75 News Print—Annual Report of Price Bros. & Co., Ltd., Shows That Big News Print Concern Has Experienced a Trying Year.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., May 8, 1922.—Within the past few weeks a much more hopeful spirit has been permeating the pulp and paper industry and the securities of the various companies have begun to regain their favorite position among the stocks traded in on the Montreal Stock Exchange. A careful analysis of the news print position during the past few months shows that there is good ground for this optimism. Practically every news print company reports an increasing volume of orders and many are now booked up practically to full capacity until late in the present year. The *Montreal Gazette*, commenting on this revival of the industry, says:

"In fact, the entire change in market sentiment seemed to have its basis in the improved outlook for the paper companies. Not only is this industry reported to be operating at capacity, particularly as regards the news print mills, but indications are not wanting that the expiration of present contracts will see an advance in the price of paper. The prediction is made by men in close touch with the situation that the third quarter of the year will see at least \$75 news print. An increase of \$5 per ton, to a company producing 500 tons per day, would mean, roughly, about a million dollars per year additional earnings without any additional outlay. The advance last week of spot paper on the New York market to 3.75 cents per pound was one of the most encouraging of recent developments to Canadian paper manufacturers."

### Boston Firm Incorporates in Canada

In connection with the news item recently appearing in the *PAPER TRADE JOURNAL* to the effect that the Hollingsworth & Whitney Company of Boston had purchased large timber limits in Nova Scotia, it is interesting to note that among the new incorporations granted by the Dominion Government is one for Hollingsworth & Whitney with a capital of \$4,000,000, headquarters at Halifax. \*

### Joins Chicoutimi Pulp

Ewart G. Fry, purchasing agent of the Hudson's Bay Company, is resigning his position with that company to become general purchasing agent of the Chicoutimi Pulp Company and the various other companies operated by them, with headquarters in Montreal.

### Price Bros. Annual Report

The annual report of Price Bros. & Co., Limited, the big Quebec lumber, pulp and news print firm, has just been sent out to shareholders. It shows that the company had a trying year, having had to fight a strike at their paper mills, while the lumber business, in which they are vitally interested, has been passing through an almost unprecedented depression. The report shows that drastic economies have been effected.

The company's profit for the year amounted to \$1,327,332, as compared with \$1,135,450 in the four months of the company's existence in the previous fiscal period. Comparisons must be made between the full year just ended and the preceding broken period. After bond and note interest, net profits were \$906,356, against \$993,458 in the previous period, payment of dividends of \$651,992 necessitating a withdrawal from surplus of \$161,992, and reducing profit and loss balance to \$490,372.

It is notable that during the year dividends were at the higher

rate for the first half of the period, so that 2½ per cent were actually paid. The 2 per cent dividend was earned in the year, net earnings being equal to 2.07 per cent on the outstanding capital stock.

Profit and loss account compares as follows:

	1922	Four months 1921
Profit .....	\$1,327,332	\$1,135,450
Bond int., etc .....	419,976	141,992
Note int. ....	2,000	.....
Net profits .....	\$ 906,356	\$ 993,358
Dividends .....	1,067,976	341,466
Deficit .....	*\$ 161,620	*\$ 651,882
Prev. surplus .....	651,992	.....
P. & L. Balance .....	\$490,372	\$651,992

### \* Surplus.

The company's working capital position is satisfactory in view of the fact that inventories in the year were written down to replacement values or less. Current assets amounted to \$5,703,390, as against \$7,592,144 a year ago, and current liabilities to \$3,914,042, against \$3,780,183. This indicates net working capital of \$2,689,347, compared with \$3,814,961 a year ago, a reduction of a little over \$1,000,000.

Working capital compared as follows:

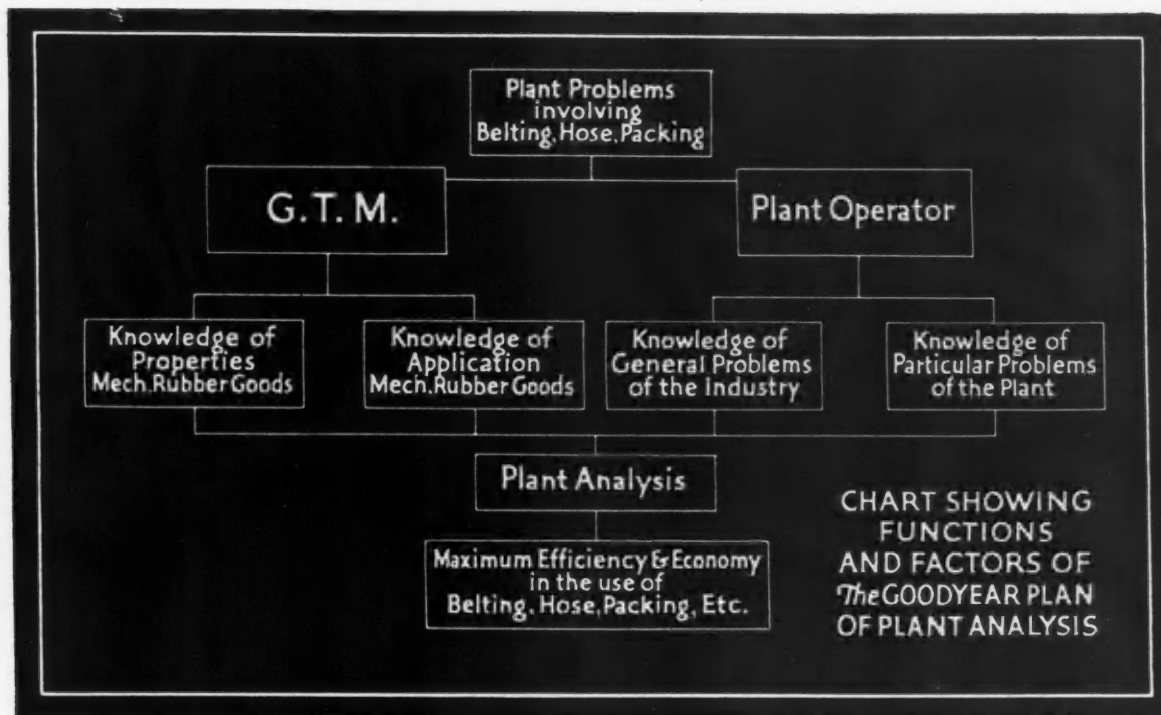
	1922	1921
Current assets .....	\$5,703,390	\$7,595,144
Current liabilities .....	3,014,043	3,780,183
Net working capital .....	\$2,689,347	\$3,814,961

Property account is carried at \$46,119,892, compared with \$45,497,018; bond debt has been reduced about \$200,000 to \$4,770,696, while reserves are \$1,107,239, against \$1,192,937. Total assets stand at \$52,134,698, against \$53,386,710.

In his remarks to shareholders, Sir William Price, president of the company, says: "There has been a decided falling-off in inventory values, and your directors have felt it incumbent upon them to write all these down to replacement values, or less, but in doing this they have found themselves unable to make any provision for ordinary depreciations of fixed assets or depletion of limits. This year under review covers a period during which the company suffered from labor troubles at its paper mills. The loss thus entailed by reduction in output, coupled with the shrinkage on account of falling prices in news print, is reflected in the company's earnings."

### Fire-Killed Logs for Pulp

One discovery which will probably mean millions of dollars saving to the pulp and paper industry and to the country generally has come out of investigations by the Forest Products Laboratory as to the practicability of pulping fire-killed trees. The forest fires which every year destroy millions of dollars' worth of Canadian timber leave behind them immense numbers of trees which are killed, but not destroyed, by the fire. Such trees are seldom logged and the wood usually becomes a total loss. Fire-killed trees are readily attacked by insects and fungi, one very common result being the so-called sap-stain, a dark coloration of the wood next the bark, due to invasion by microscopic fungi. As the value of sap-stained wood for making paper pulp has been questioned by manufacturers, an investigation of the subject was recently undertaken. It was found that pulping by the sulphite process failed to remove the coloration, but that it could be completely eliminated by the ordinary bleaching methods. The sap-stain, therefore, need not prevent the material from being used for bleached sulphite pulp. This is the first step in an investigation into the pulping qualities of fire-killed woods in general.



Copyright 1922, by The Goodyear Tire & Rubber Co., Inc.

## Plant Analysis Service — and the G. T. M.

**Look at this chart.** It pictures, in the language of the plant superintendent and the industrial engineer, the place occupied by the G. T. M.—Goodyear Technical Man—with relation to your belting, hose and packing problems.

**It identifies the G. T. M.** for what he is, the tested link in the chain of service connecting your need for efficient plant operation, and your knowledge of the special working conditions of your plant, with the Goodyear Plan of Plant Analysis and the products Goodyear makes for industrial use.

**The G. T. M. is an expert** in his line. He knows the properties of good mechanical goods. He is trained in the science of their specification and application. His work takes him into many plants, in many industries, so that he is familiar with most transmission and conveying problems, and is a practical authority on many of them.

**When he comes to your plant,** he comes as a friendly analyst of your operating problems, your troubles, maybe. He doesn't pretend to know it all. He takes the advice of your superintendent and engineer. He gives close attention to their experienced knowledge of your particular working conditions.

**His sole object** is to fit what he knows about belting, hose or packing to the demonstrated conditions of service in your plant. If he can find out what you need, and Goodyear can furnish it, he will recommend it to you, and after its installation he will follow it up with a sincere service.

**Isn't it logical** that a belt, or other equipment, that is constructed right in the first place, and then is specified intelligently to the work it is to do, is much more likely than any other product is to serve you longer and better, with freedom from trouble, and return to you the full value of its utmost efficiency and economy? The Goodyear Analysis Plan is based on that reasoning, and the G. T. M.'s work is to insure that you get the equipment that will serve you longest and best.

**There is a G. T. M.** in your neighborhood. Call on him for an analysis of your mechanical goods problem, whether it involves a single unit or an entire plant, a conveyor or a transmission, a hose or a packing equipment. For further information about the G. T. M., and his work, or the kind of service Goodyear products give in your particular industry, write to Goodyear, Akron, Ohio, or Los Angeles, California.

GOODYEAR



## KALAMAZOO PAPER COST MEN HOLD INTERESTING MEETING

**Paul M. Broesamle Brings Out Fact at Meeting at Park-American Hotel That Kalamazoo Valley Local Division Was the Original Cost Association—Harry C. Bradford Tells How an Executive Can Easily Tell Whether His Costs as Submitted to Him Are Correct—G. K. Ferguson, Who Presides, Tells How Much Work and Expense Are Necessary for a Complete Accounting System.**

[FROM OUR REGULAR CORRESPONDENT.]

KALAMAZOO, Mich., May 8, 1922.—The Kalamazoo Valley local division of the Cost Association of the Paper Industry is father of them all. That was brought out at the meeting on Monday evening of last week at the Park-American Hotel, when Paul M. Broesamle, of the Allied Paper Mills, in his brief synopsis of the progress of cost accounting in the Kalamazoo Valley, disclosed the fact that the Kalamazoo association was formed before the organization of the national association and was functioning actively at the time the national came into being.

"Previous to 1915 only two or three mills in the valley maintained cost systems," said Mr. Broesamle. "In the short intervening period we have been able to form the present association, which has grown to 33 in membership, representing 17 mills in this section."

The Kalamazoo Valley local has been assigned an important place in the conduct of the Joint International Convention of the paper and pulp superintendents and cost accountants, which will be held in this city June 1, 2 and 3.

### How to Tell Whether Costs are Correct

Harry C. Bradford, also of the Allied Paper Mills, handled the subject, "How an executive can easily tell whether or not his costs as submitted to him are correct." By means of slides he was able to carry his hearers along over a discussion of the various phases of the system used and the means of arriving at figures for the various stages of manufacture and work in the several departments of the mill. The complete list of compiling sheets for the month were shown.

George K. Ferguson, of the Watervleit Paper Company, presided at the meeting and presented the paper on "How Much Work and Expense are Necessary for a Complete accounting and Cost System."

### Benefits From Cost System

B. M. Silver, manager of the Kalamazoo office of Ernst & Ernst, handled the subject, "The Benefits the Executive Can Derive from a Complete Accounting and Cost System." He made it clear in his argument that the proper departmentalization of a plant as to costs is necessary, if one is to arrive at the correct results. To demonstrate this more clearly he analyzed power plant costs, machine room costs, also general mill statistics.

Books must be on an approved basis, he said, while it is just as important that the inventory be always correct. He advised that executives tie costs in with financial records, or general books of the business.

### The Human Element

Jacob Kindleberger, president of the Kalamazoo Vegetable Parchment Company, emphasized the human element in his talk to the cost men. He brought out many good points.

"It is my opinion that a general round-table discussion would do greater benefit than speeches," he said. "We seldom practice the next day what we say in speeches the night before."

He called attention to the danger of being over-systematized, and added: "Blessed is the man who has sense enough to stay in the

middle of the road. A cost system is a good thing if coupled with good sense. Get your facts straight. Your attitude must be correct to get co-operation. The cost man should be a student of human nature. Insist on getting accurate reports. One thing at a time is enough. Don't be afraid to get out in the mill and get your hands dirty, and don't be so over-systematized that you forget the human element. That is the biggest factor in business. Industry is paying too much attention to machinery, forgetting the human element."

### Charles A. Blaney Speaks

Charles A. Blaney, president of the Eddy Paper Company, declared he agreed heartily with Mr. Kindleberger in the statement that the human element is all-important in business. "A few kind words at the right time will help most. Costs can be figured a little too close to the line."

Mr. Blaney said the old-style paper-maker figured that costs started at the wet end of the paper machine. "We know it begins at the coal pile. It is of the utmost importance that a mill have first-class power equipment. We are realizing the importance of highly efficient engineers and firemen. They can work wonders in keeping down costs."

### Canadian Paper Exports Decline

Canadian exports of pulp and paper for March were valued at \$10,672,332, compared with \$12,407,476 in March, 1921, a decline of \$1,735,144 from last year, but a gain of \$4,358,268 over February.

Exports of news print amounted to 1,930,913 hundredweight, an increase of 388,445 compared with March a year ago and a new record. Pulp exports, compared with a year ago, increased in volume, 286,138 hundredweight and in value \$692,571.

For the twelve months ended March 31, the total value of pulp and paper exported was \$105,458,295, which is \$58,197,049 below 1921, the banner year, but \$821,394 above 1920 the next highest.

March shipments of pulpwood to the United States amounted to 96,998 cords, valued at \$955,983, as against 589,287 cords, valued at \$2,521,863, in March, 1921. For the year wood exports totaled 825,967 cords, valued at \$9,879,150; in 1921, 1,615,467 cords, valued at \$21,513,594.

### Hartong-Manning Paper Co. to Start

GALESBURG, Ill., May 8, 1922.—The wholesale paper company whose advent into Galesburg business circles was announced some time ago, is now ready to commence business under the name of the Hartong-Manning Paper Company. The new company has installed a large line and while it is not as complete as was hoped for by the company, the stock is expected to be completed in a short while.

The new company is under the management of business men who have had considerable experience in this line of work, which is entirely new in this city.

A large corps of competent salesmen will be added to the company's force as soon as possible and handle the trade for the new organization.

### Becomes Superintendent of White & Wyckoff

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., May 8, 1922.—The White & Wyckoff Manufacturing Company, announces the promotion to superintendent of Henry J. Toepfert, who has been connected with the company for more than thirty years, succeeding Herbert W. Cowan, who has resigned after rounding out exactly a full score of years with the company.

Mr. Toepfert succeeds to the position of superintendent after a complete and varied experience in the White & Wyckoff plant, starting as a boy thirty years ago, having risen successfully through numerous positions to assistant superintendent, which position he now leaves to become superintendent.

**FOR QUALITY PAPERS  
USE**

**A-1 BLEACHED SULPHITE PULP**

MANUFACTURED BY

**Kellner-Partington Paper Pulp Co., Ltd.**

**Borregaard**

**Norway**

SOLE AGENTS FOR U. S.

**J. Andersen & Co.**

**21 East 40th Street**

**New York, N. Y.**

**WAYAGAMACK**

**KRAFT PULP**

*Uniform in Quality*

*Essential for Strength Requirement*

**The Pulp and Paper Trading Company**

**21 East 40th St., New York, N. Y.**

Sole Agents for United States for

**CANADIAN KRAFT, Ltd.**

**Three Rivers, Canada**

## PAPER BUSINESS IN TORONTO IS CONSTANTLY IMPROVING

**Orders Are Coming in for Larger Quantities—Jobbers in Montreal and Toronto, It Is Reported, Have Decided to Adopt the Long Price List With Certain Restrictions—John M. Imrie States That Lower Athabasca Valley in Western Canada Is Destined in Next Decade to Become Great Center for Pulp and Paper Mills—Prairie Paper Mills Formed in Winnipeg.**

[FROM OUR REGULAR CORRESPONDENT.]

TORONTO, Ontario, May 8, 1922.—Business in the paper line has so far this month been very fair and has shown an increase over the previous week. Orders are coming in for larger quantities and the outlook is improving. Sheathing paper is in particularly strong demand owing to the active house building campaign in the larger cities. News print mills are very busy. The price of glazed kraft has been slightly increased and is now 8 and nine-tenths cents per pound in car lots to jobbers. The advance was fifteen cents per hundred. Unglazed kraft is still sold at 8¾ cents. No. 1 manila has been reduced one-quarter of a cent and is now going at 7¼ cents to jobbers. The flat paper jobbers in both Montreal and Toronto, after conferences with printers and among themselves, have decided to adopt the long price list with certain restrictions. The printing and the envelope trades have for some time been in favor of this move, which, it is understood, will go into effect on September 1 next. The question of the long price list has been under consideration for several months by the book and writing section of the Canadian Paper Trade Association.

### Predicts Paper Mills for Athabasca Valley

John M. Imrie, manager of the *Edmonton Journal*, and former manager of the Canadian Daily Newspaper Association, was in Toronto last week and is most enthusiastic over the prospect of the Lower Athabasca Valley in Western Canada becoming a great center for pulp and paper mills in the next decade. He says there is an immense virgin tract of spruce timber standing untapped within easy distance of Edmonton, Alberta. R. O. Swezey, pulp and paper expert, who some time ago made a cruise through the district, told Mr. Imrie that not only was there an abundant forest of spruce in the region but also ample water power, while natural gas would permit of the cooking of sulphite pulp at a cost much below the costs at the mills using ordinary fuel. With the distances growing ever greater between the spruce forests of Ontario and the markets, the mileage from Edmonton to consumers in the western states was considerably shorter than between the limits in Northern Ontario and Quebec and the centers of consumption in Old Ontario and the eastern States.

### Emergency Dams May Be Erected

A bill has been introduced in the Ontario Legislature by Hon. Harry Mills, giving certain concessions to lumbermen and pulp wood operators. The Rivers and Streams Act is being amended so that they may construct emergency dams, without permits from the department in Toronto. Hitherto lumbermen and pulp wood operators, on finding their dams giving way, could not build an emergency dam farther up the stream, without going through the form of securing official consent, which in certain cases might prove a hardship and unnecessary delay.

### Model Town Planned for Ontario

Kapuskasing, in New Ontario, where the Spruce Falls Company, of Neenah, Wis., has erected a large sulphite pulp mill and will later on build a news print mill, is to be laid out by the Ontario Provincial Bureau of Municipal Affairs, on a model town

planning design. The site of 2,100 acres is about 40 per cent partially cleared, while the 220 acres subdivided as a townsite is wholly cleared and ready for extensive building operations.

### Health Department Demands Wrapped Bread

Dr. Hastings, Medical Health Officer of Toronto, is arousing the public to the desirability of having all bread delivered in the city wrapped. He intends going into the price of wrapped loaves with the bread manufacturers, who have demanded an extra cent a loaf if such an ordinance is passed. Manufacturers of waxed paper report that the industry has fallen off considerably of late months owing to many bakers who formerly sealed a large part of their product ceasing to do so on account of the additional cost.

### Prairie Paper Mills Get Charter

Word has been received in Toronto that a company has been formed in Winnipeg, known as the Prairie Paper Mills, Limited, with a capital stock of \$100,000, to buy, sell and deal in waste paper and rags, and to manufacture paper and pulp of all kinds. M. Melnyk, waste paper dealer, of Winnipeg, Man., is one of the men behind the new enterprise.

### Kaministiquia Pulp Mill Now Running

The pulp mill of the Kaministiquia Pulp and Paper Company, of Port Arthur, Ont., which closed down early last summer owing to financial difficulties, has begun operations, after receiving a thorough overhauling, and is now turning out about 40 tons a day of groundwood pulp. A new intake pipe was recently constructed and installed. Some 40 men are employed, and Earl Smith, of Port Arthur, has been appointed superintendent at the mill.

### Pulp Concern Will Take Hydro Power

The Provincial Hydro-Electric Commission and the Ontario Government are making every effort to get the Nipigon Power Development out of the difficulties in which it has been involved. It is reported that an agreement has been reached with the reorganized Nipigon Fiber and Paper Company, of Nipigon, Ont., by which that concern will take 10,000 horsepower at a price of \$18. The Nipigon company will increase its capacity, according to advices received from Port Arthur, from 35 to 100 tons a day, and arrangements are already being made to enlarge the mill. It is understood that the deal involves the taking over of the Nipigon plant by the Great Lakes Pulp and Paper Company, of Port Arthur, owners of the Black Sturgeon and Pic River pulpwood limits. Some time ago it was announced that the Great Lakes company would erect a big pulp mill in Port Arthur on the Bare Point site, but it now seems as if the definite location will be Nipigon.

### Notes and Jottings of the Trade

F. E. Jones, representing the wholesale paper house of W. H. Sims & Son, Christchurch, New Zealand, was in Toronto recently calling on the paper trade. He is on a buying trip and is making a tour around the world.

The sales office of the Lincoln Paper Mills, of Merritton, Ont., has been removed from 112 Bay street, Toronto, to 43 King street west. The premises lately vacated have been leased by Cameron & Fraser, paper merchants, who have occupied part of the warehouse, but will not use the entire space.

E. A. Schofield, of the Schofield Paper Company, St. John, N. B., and wife were in Toronto this week and were greeted by many friends in the trade. Until recently Mr. Schofield was Mayor of St. John.

A charter has been granted to Paper Excelsior, Limited, Toronto, with a capital stock of \$40,000, to manufacture, sell and deal in paper and paper products. Among the incorporators of the company are C. G. French, O. B. Thibaudeau, and Wm. J. Archibald, of Toronto.



***“—and I always thought that it was expensive pipe.”***

“But, as a matter of fact,” said the paper mill superintendent, “Reading Genuine Wrought Iron Pipe is the cheapest. And here’s the way I discovered that fact: Our comparatively new mill was originally installed with ordinary pipe. This pipe didn’t last. It corroded—rusted away. Replacements had to be made. Production stopped. And manufacturing and maintenance costs traveled the steep, upward path. That settled it for me. I studied pipe and the result is, I have used Reading ever since. Reading is installed throughout my mill today. And so my production and maintenance costs, dependent on the life of the pipe, are now down to a minimum.

You, too, will soon realize the ultimate economy of Reading Genuine Wrought Iron Pipe when you discover it lasts on an average three times longer than the best steel pipe.

Only genuine wrought iron pipe can do this. It contains a siliceous slag content which protects it from corrosion—the common cause of short pipe life. Reading Pipe, being 100% genuine wrought iron, resists corrosive elements best.

If pipe replacements are necessary in your mill, see that Reading Genuine Wrought Iron Pipe is used. Better still, install Reading originally. It will save you replacement costs that are apt to run into thousands of dollars. It will help keep production costs down and realize a high saving on upkeep. It is by far the cheapest pipe you can buy per year of service.

*It will pay you to write for our bulletin on pipe.*

**READING IRON COMPANY  
READING, PENNSYLVANIA**

Boston  
New York  
Philadelphia

Baltimore  
Pittsburgh  
Cincinnati

Chicago  
Fort Worth  
Los Angeles

*World’s largest makers of Genuine Wrought Iron Pipe*



**READING  
WROUGHT IRON PIPE**

## BIDS AND AWARDS ON GOVERNMENT PAPER

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 10, 1922.—The Post Office Department will receive bids on May 25 for supplies for the postal service for the fiscal year beginning July 1. Among other things the Post Office Department is asking for bids on the following paper items:

- 1,500,000 sheets of 38 x 8" perforated paper.
- 156,000 pounds of flat white writing paper.
- 10,000 pounds of flat colored writing paper.
- 210,000 pounds of flat white M. M. book paper.
- 60,000 pounds of wove impression paper.
- 28,000 pounds of white wove typewriter paper for manifolding.
- 57,000 rolls of white computing machine paper.
- 8,000 dozen 3½ x 8" tablets.
- 1,367 sheets of semi-black carbon paper for typewriter use.
- 1,365 sheets of black pen carbon paper.
- 730,000 sheets of black carbon paper carbonized on both sides.
- 720,000,000 of 3-16 x 4" plain facing slips.
- 31,000,000 same size printed facing slips.
- 10,000,000 pounds flat smooth M. F. manila paper.
- 30,000 pounds flat sulphite manila.
- 200,000 pounds flat manila paper.
- 410,000 pounds flat manila paper.
- 35,000 pounds flat smooth finish wrapping paper.
- 35,000 pounds same.
- 80,000 pounds same.
- 2,120,000 plain white index bristol cards.
- 4,000,000 blank examination cards.
- 2,225,000 white index bristol cards.
- 277,000 blank guide cards.
- 47,000 pearl gray pressboard guide cards.
- 10,000 pounds standard colored cardboard.
- 20,000 pounds white cardboard.
- 9,000 pounds white railroad board.
- 10,000 pounds standard colored cardboard.
- 7,000 pounds smooth-finished manila cardboard.
- 109,000 pieces of chip board, straw board or news board.
- 6,000 sheets waterproof oil board.
- 90,000 pounds granite-colored blotting paper.
- 385 dozen white paper blank books.
- 1,290 dozen record ruling memorandum books.
- 450 dozen memorandum books.
- 1,800 dozen stenographers' note-books.
- 600,000 plain rope manila tags.
- 1,200,000 plain manila tags with eyelets.
- 9,000,000 custom declaration tags.
- 30,000,000 parcel post rope manila tags.
- 3,500,000 rope manila tags.

### Government Printing Office Bids

The purchasing officer of the Government Printing Office has received the following paper bids:

Six reams 36 x 48" gray pressboard; Mathers-Lamm Paper Company, at \$.1075 per lb.; R. P. Andrews Paper Company, \$.0972; the Whitaker Paper Company, \$.147; Philip Rudolph & Son, Inc., \$.165; Geo. W. Millar & Company, Inc., \$.1065; Maurice O'Meara Company, \$.1045; Dobler & Mudge, \$.1057; Old Dominion Paper Company, \$.149.

### Government Printing Office Awards

The R. P. Andrews Paper Company has been awarded the contract by the Purchasing Officer of the Government Printing Office for furnishing 2,190 pounds of 21 x 32½—109½ No. 60 salmon

commercial ledger paper at 19 cents per pound, bids for which were opened on April 7.

### News of the Boston Trade

[FROM OUR REGULAR CORRESPONDENT.]

BOSTON, Mass., May 10, 1922.—Expansion of business continues in this city—slow but reassuring. For the first time in many months a few contract orders were put through in three separate houses.

The contracts in two instances called for a six months supply and in the other for a year.

This fact caused some comment chiefly the remark—"How can they do it"? These contracts, according to many of the old timers, are positive signs of a return to better conditions and display greater confidence on the part of the consumer than has been shown for a long time.

A very interesting house publication "The Lombard News Letter" is being issued monthly by Lombard & Co. of Boston, Mass., manufacturers of pulp stones. The several issues already gotten out have been of historical interest and also contained matter of real value. The Lombard News Letter is different from the usual run of house mediums in that very little space is given to the exploiting of its own products.

Hervey J. Skinner, of Skinner, Sherman & Esselen, Inc., who are consulting chemists for the United Fruit Company, sailed for Cuba on April 28, on a trip of inspection of the sugar properties of the Fruit Company. He will probably be occupied on this work about a month.

The Stone & Forsyth Company was host on the evening of May 1 to its sales force and department heads at a dinner held at the Boston City Club. After the dinner, addresses were made by Edward H. Stone and Herbert F. French, Public Accountant. A general discussion followed on business conditions and prospects.

At A. Storrs & Bement Company an interesting illuminated display of Southworth watermarks of the Southworth Company mills at Mittineague, Mass., has been installed. These watermarks lead to distinctive business stationery. A new line of goods has been taken on by the company recently. It is known as "Astorfold Enamel," a folding enamel of extra fine grade which is low in price. J. C. Brewer, the advertising manager of the A. Storrs & Bement Company, has announced his engagement to Miss Roxana Schenkelberger of Quincy. Miss Schenkelberger's father is president of the Safepack Mills, who manufacture special wrapping paper. Mr. Brewer is well liked among his associates and is prominent in the advertising and paper field.

### Paper Makers Meet at Franklin, N. H.

[FROM OUR REGULAR CORRESPONDENT]

FRANKLIN, N. H., May 10, 1922.—A mass meeting of workers in the paper mills in this city was held Monday night at the Franklin Opera House and was addressed by John P. Burke, of Fort Edwards, N. Y., and Michael J. Curtin, of Bellows Falls, Vermont. Mr. Burke, who is a former Franklin man, is president of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers.

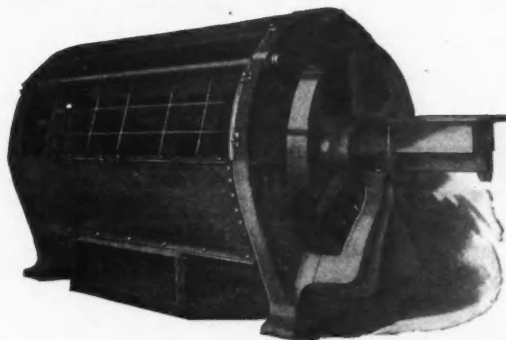
He is also a leader in the papermakers' strike, which is now entering on its second year. Curtin has just been released from the Vermont state prison at Windsor, Vermont, for alleged intimidation last fall in connection with the paper mill strike in Bellows Falls, Vermont. Both speakers were warmly welcomed by the paper workers, who were urged to do their part in keeping up the strike.



# "IMPCO" TAILING SCREENER

## FOR SCREENING GROUND WOOD TAILINGS

Very Low  
Power  
and  
Upkeep Expense



Delivers  
Rejections Free  
from Good  
Stock

ANOTHER UNIT OF OUR CLOSED SYSTEM FOR PULP SCREENING  
*WRITE FOR FULL DETAILS*                      *CORRESPONDENCE A PLEASURE*

**IMPROVED PAPER MACHINERY CO.**                      **Nashua, N. H.**  
SHERBROOKE MACHINERY CO., LIMITED, SHERBROOKE, CANADA

# WHALEN SULPHITE PULPS

Made from the SITKA SPRUCE of BRITISH COLUMBIA  
Noted for Fibre, Color and Strength

**SNOWWHITE  
BLEACHED  
SULPHITE**

**GLACIER  
EASY BLEACHING  
SULPHITE**

**SWAN  
STRONG  
SULPHITE**

As exclusive Sales Agents for all of the products of the WHALEN PULP & PAPER MILLS, LTD., in addition to stocks at the mills, we will carry large stocks of the above well-known brands in New York, thus insuring prompt deliveries.

Your inquiries addressed to any of our offices will bring prompt quotations by wire.

**CANADIAN ROBERT DOLLAR CO., Limited**  
VANCOUVER, B. C.

*U. S. ADDRESSES*

Robert Dollar Co., Robert Dollar Bldg., San Francisco.  
Robert Dollar Co., 15 Moore Street, New York, N. Y.  
Robert Dollar Co., Harris Trust Bldg., Chicago, Ill.  
Robert Dollar Co., L. C. Smith Bldg., Seattle, Wash.

*FOREIGN OFFICES*

Robert Dollar Co.,  
Shanghai, Hong Kong,  
Hankow, Tientsin,  
Ichang, Chungking, and  
Pekin, China; Kobe,  
Japan; Calcutta, India;  
Manila, P. I.; Singapore,  
S. S.

## Obituary

James Andrew Outterson

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., May 8, 1922.—James Andrew Outterson, of Carthage and New York, a pioneer and one of the most conspicuous figures in the papermaking industry of Northern New York, and president of several companies, died suddenly of pneumonia in his apartments in New York on Saturday morning. That he was ill for a few days was known here, but it was not known that pneumonia had developed. Information obtained Friday indicated



JAMES ANDREW OUTTERSON

that his recovery was sure, but a weak heart caused his sudden death. The news came as a great blow to his friends and acquaintances in this section, where he was known to all, and it was a shocking surprise to the paper trade everywhere. His family was at his side at the last, having been called to New York on Thursday.

His body was brought to his Carthage home Sunday and the funeral took place at 2.30 Tuesday afternoon. Three clergymen of that village officiated and the Watertown Commandery, K. T., Masons, and Odd Fellows of Carthage, of which orders he was a member, attended in bodies. Paper mill men from all sections of the country were present.

The bearers were all paper manufacturers and friends of deceased. They were: Joseph B. Seaman, J. H. McCormick, F. A. Ogsbury, A. F. Wardwell, Guy C. Jones, and John G. Jackson.

James A. Outterson was recognized as one of the most prominent paper manufacturers in the business, and one who did more to build up this section to its conspicuous position in the paper industry than any other person. He organized many paper companies in Northern New York, or was the moving spirit in their organization. Among them were the Outterson Paper Company at Brownville, the Dexter Sulphite Pulp and Paper Company at Dexter, the Frontenac Paper Company at Dexter, the Racquette River Paper Company at Potsdam, the Newton Falls Paper Company and four mills in Carthage. Since that time he has been identified with numerous other paper mill deals and at the time of his death was stockholder and officer in several.

At the time of his death Mr. Outterson was president of the De Grasse Paper Company, the Carthage Sulphite Pulp and Paper Company, the High Falls Pulp and Paper Company, the Ogdensburg Paper Mills, the Quebec-Saguenay Pulp Company, and the

Carthage Machine Company. He was negotiating the purchase of the Champion Paper Company plant with a view to consolidating it with his other mill at Carthage and Ogdensburg.

James A. Outterson was born in Binghamton, October 18, 1858, the son of Colonel and Mrs. James T. Outterson. His father was a paper mill superintendent, and his grandfather, Andrew Outterson, was a papermaker in Scotland and Ireland before coming to the United States. His great-grandfather was also a papermaker.

When a lad of 10 years he started his paper mill career doing odd jobs in his father's paper mill at Pulaski. He later worked in the Rainbow mills on the Farrington river in Connecticut, where his father became superintendent. He then wandered from mill to mill as a boy, gaining the experience in the trade which finally brought him to a conspicuous position in the industry. He is quoted as having remarked at one time that he had worked in fully 50 mills for short periods.

He went into business for himself in 1884, when he rented a small mill at Fayetteville, which burned a few months later. He then came to Brownville and at the age of 26 he rented the Lord paper mill and manufactured wrapping paper out of straw, rags and old papers. This was a success and he later organized the Outterson Paper Mill at Brownville, which is now the Harmon Paper Company plant. He boasted of being the first to make paper entirely from wood.

His next step was the organization of the Dexter Sulphite Pulp & Paper Company, with Dr. Charles E. Campbell, father of Drs. James and Clarence Campbell. Following this he started the Frontenac mill in 1889, the Racquette River Paper Company in 1892, and three years later organized the Newton Falls Paper Company. In 1897 he went to Carthage to build up the industry there. In four years he has built four mills there and made that village a prosperous center. He organized the Carthage Tissue Mills, the Carthage Sulphite, the Champion Paper Company, and the West End Paper Company. In 1904 he organized the Leray Paper Company there.

A few years ago he bought the Ravenswood Paper Company, on Long Island, but sold it just prior to an accident in New York in which he nearly lost his life. In 1903 he and his associates secured control of the DeGrasse Paper Company, at Pyrites, which is now controlled by the New York *World*.

While Mr. Outterson gave freely to charity, his gifts to the poor and his numerous contributions to old employees who had seen better days were not generally known until of late.

In politics he was a Republican and served on the Board of Supervisors, and also for two years in the State Assembly.

Besides being always active in the life of Carthage, he was a member of several fraternal organizations. He was a member of the Carthage Lodge of Odd Fellows, Carthage Lodge, F. & A. M., Carthage Chapter, R. A. M., Watertown Commandery, K. T., and Media Temple, Mystic Shrine.

He was one of the first members of the Board of the Black River Regulating District, was a director in the Carthage National Bank, and president of the Carthage Machine Company, in addition to his paper mill connections.

Surviving are his widow, one daughter, Mrs. David Balmat, and two sisters, Mrs. Mabel Monte, of New York, and Mrs. Carrie B. Bernier of Canton.

During the funeral ceremonies all work was suspended at the DeGrasse Paper Company, between 2:30 and 3:00 o'clock Tuesday afternoon, and large delegations from his mills and office accompanied the cortege in tribute to the passing of a great leader in the paper industry.

Richard F. Knott

OTTAWA, Ill., May 8, 1922.—Richard F. Knott, president of the Crescent Paper Company at Marseilles, Ill., died at his home at East Ottawa, May 2.

(Continued on page 36)



# POLAND PAPER COMPANY

MANUFACTURERS OF

**Bond, Ledger, Writing, Envelope, Strong Book, Coating  
and other 100% Bleached Sulphite Specialties**

Your inquiry will receive immediate attention without incurring any obligation

MILLS AT  
MECHANICS FALLS, ME.

Sales Office 200 FIFTH AVE.  
NEW YORK



## CONVEYING AND POWER TRANSMITTING MACHINERY

For handling the raw materials and finished products inside or outside the plant

### Quality Pays

Frequent shutdowns and waiting for repairs dissipate your profits.

**Weller Made Machinery proves its merit because quality is built into it.**

LET US KNOW

The kind of equipment you are interested in. Catalogues will be sent.



- WE DESIGN AND MAKE
- BELT CONVEYORS
- CHIP CONVEYORS
- COAL CONVEYORS
- PULP CONVEYORS
- STRAW CONVEYORS
- BUCKET ELEVATORS
- HEAVY STEEL CHAIN
- COMBINATION CHAIN
- SPROCKETS
- SCREENS
- FRICITION CLUTCHES
- HEAVY BEARINGS
- ROPE DRIVES
- PULLEYS
- GEARS
- COAL HANDLING EQUIPMENT, ETC.

Get Our Prices Before Placing Your Order.

## WELLER MFG. COMPANY

Main Office and Works: 1820-1856 N. Kostner Ave.

CHICAGO, ILL.

Sales Offices

New York    Boston    Baltimore    Pittsburgh    Cleveland    Detroit    Salt Lake City    San Francisco

## Obituary

(Continued from page 34)

Mr. Knott was born in Mobile 59 years ago last January. His father was prominently identified with the Confederate cause and sacrificed his fortune. Mr. Knott managed, however, to get a good education and a military training.

Mr. Knott was married in the South to Miss Sally Oliver and shortly afterwards they came to the North. Mr. Knott was brought to Marseilles in 1892 by the late Lucius Clark as office man for the Marseilles Land & Water Power Company, which was owned at that time by Ferdinand Schumacher, the "oatmeal king," of Akron, Ohio.

After the collapse of Mr. Clark's ambitions, and the failure of Mr. Schumacher, Mr. Knott became manager of the Water Power Company. The Schumacher estate owned a small paper mill in Marseilles and in 1896 Mr. Knott leased it and operated it under the name of the Marseilles Strawboard Company. He was a successful manufacturer from the start, and within three or four years he was able to buy the mill, which was held at a small figure.

Mr. Knott began branching out and soon had a printing plant and a paper box factory, but matters were not smooth sailing for him, as he had several reverses, principally through fires. After one of these fires the name was changed to the Crescent Paper Company. Mr. Knott secured the contract for supplying strawboard to the Quaker Oats Company, and nearly every year saw an enlargement to his mills. Within the last few years he doubled the capacity of the mills and built up a plant valued at \$1,000,000—one of the very best in the country.

In addition he acquired the south side coal mine in Marseilles, which operates under the name of the Manufacturers' Coal Company, and he operated for the Quaker Oats Company a paper mill at Pekin, Ill.

### Noah Bryant

[FROM OUR REGULAR CORRESPONDENT.]

KALAMAZOO, Mich., May 5, 1922.—Noah Bryant, aged 83 years, and one of the best-known figures in the paper industry, and for the past 50 years a leader in the Kalamazoo Valley district, died shortly after noon, Thursday, at the home of his daughter, Mrs. Frank H. Milham, in this city.

Mr. Bryant had been in poor health for six or seven years, suffering two or three attacks that promised to prove fatal, but he always rallied and was then able to be about again for a considerable period. Something like six weeks ago he suffered another attack and was forced to his bed. He has been sinking steadily.

He was born in England and started in to learn the trade of paper-making in one of the small "hand made" mills near London. When still a young man he came to America, accepting a position at Fitchburg, Mass. It was while working there as machine tender that he resigned and came west to Kalamazoo, accepting the position of superintendent of the original mill of the Kalamazoo Paper Company, which stood on the site now occupied by the Monarch division of the Allied Paper Mills.

In 1883 George E. Bardeen resigned an important executive position with the Kalamazoo Paper Company and organized the Bardeen Paper Company, of Otsego. Mr. Bryant went with him as general superintendent, remaining until 1895, when he was one of the original incorporators of the Bryant Paper Company, holding \$10,000 in stock in that concern when its capitalization was \$125,000. He has retained his interests in the Bryant Paper Company during the intervening years. His original holdings have increased to a par value of over \$400,000 and a book value in excess of \$700,000. In addition he is a heavy shareholder in the Illinois Envelope Company and the Kalamazoo Vegetable Parchment Company.

When the Bryant Paper Company was first organized, Mr. Bryant

was named president of the company. He held that position until succeeded by his son-in-law, Frank H. Milham.

Just how much Mr. Bryant leaves as an estate is not known. He was an extreme conservatist in all his dealings, careful of his funds, and had for years enjoyed an income far in excess of his physical needs. It is an often-told story that but for the never-failing efforts of the late John F. King, Mr. Bryant would not have become interested in the Bryant Paper Company, but would instead have engaged in the flour and feed business at Otsego. He was at first opposed to the organization of the Bryant Paper Company and used every effort to dissuade his son-in-law, Frank H. Milham, from becoming involved in the new company. He was finally overruled, the result being that for years he has been recognized as among the coterie of wealthy paper mill men in the Kalamazoo Valley.

Now and then he became communicative and would then talk of his boyhood days in the industry. Many years ago he visited England and paid a call to his old mill, meeting some of the men he had worked with when he made his start. He told of pulling off his coat and making a sheet of hand-made paper, just to let them see he still understood the knack.

Noah Bryant is the last of a line of brothers and sisters. He is survived by one daughter, also a grand-daughter, Mrs. James Reynolds, of Kalamazoo.

### Paper Salesmen Adopt Prayer

The New York members of the Salesmen's Association of the Paper Industry are not satisfied with the possession of a Chaplain, talented though Dr. Craig Stewart, the official clergyman of the association, is. At their monthly luncheon at the Arkwright Club, with the biggest attendance yet held, they adopted a prayer which they will recommend to the entire association for adoption. Here it is, under the title of "A Business Man's Prayer":

Teach me that sixty minutes make one hour; sixteen ounces one pound, and one hundred cents one dollar.

Help me to live so that I can lie down at night with a clear conscience, without a gun under my pillow, and un-haunted by the faces of those to whom I have brought pain. Grant that I may earn my meal ticket on the square and that, in earning it, I may not stick the gaff in where it does not belong.

Deafen me to the jingle of tainted money and to the rustle of unholy skirts. Blind me to the faults of the other fellows, but reveal to me my own. Guide me so that each night when I look across the dinner table at my wife who has been a blessing to me, I shall have nothing to conceal. Keep me young enough to laugh with my children.

And when come the smell of flowers, the tread of soft steps, and the crunching of wheels out in front, make the ceremony short and the epitaph simply—

"Here Lies a Man."

Several executives were the guests of the association, and T. J. McMannis, Director of Advertising and Publicity for the Edison Division of the General Electric Company, was the speaker of the day. He told how an advertising man looks at the salesman, and particularly how he looks at the man who tries to sell him.

"What I want most of all is sincerity from a salesman," he said. "I do not care much about these tricks of selling. I want information, and a knowledge of his product, from a salesman, and if he lacks these essentials he cannot get met a second time.

### To Make Pulp Pie Plates at Hoboken

HOBOKEN, N. J., May 8, 1922.—S. Safier, Inc., of Hoboken, has formed a subsidiary for the purpose of manufacturing pulp pie plates, at the newly equipped factory of the firm, located in Hoboken.

**GROUND WOOD  
CHEMICAL PULPS**

**PERKINS-GOODWIN CO.**  
NEW YORK

**PAPER**

ALFRED LEEDS, President  
KARL BECKER, Vice President

ERNEST R. COLLINS, Secretary  
EDWARD M. MILLER, Treasurer

# Becker Paper Corporation

**350 Madison Ave., New York, N.Y.**

317 Main Street, Springfield, Mass., Branch Office for New England States

Dealers in All Grades of Paper

SPECIALISTS IN  
BOOK PAPER, GLASSINE and EMBOSSED  
GLASSINE PAPERS

Exclusive Distributors for  
**WESTFIELD RIVER PAPER COMPANY**  
RUSSELL, MASS.

## New York Trade Jottings

The Gibbs-Brower Company, paper and pulp mill brokers, has sold for the S. W. Board Company, in conjunction with the H. G. Craig & Co., of 52 Vanderbilt avenue, the former Bank Mill at Montville, New London, Conn.

The many friends of President S. Goldman, of the English China Clays Corporation, 33 West 42nd street, New York City, will be relieved to learn that the operation which Mr. Goldman underwent several weeks ago has proved successful and that he is now on the high road to recovery.

Frank H. White, formerly New York representative of the White-Washburne Company, Hinsdale, N. H., and New York City, and recently representing the Wallabout Paper Specialties Corporation of New York City and Brooklyn, announces his resignation from the latter concern taking effect the 25th of last month.

The Allied Paper Mills, Inc., will occupy their warehouse, 471-473 Eleventh avenue next week. Their stock of papers is arriving and when complete will consist of all the regular papers, coated and uncoated, made by their three mills. Both their method of merchandising and their policy has been announced to the trade.

A petition in bankruptcy was filed Tuesday against the American Coated Paper Company, Inc., of 111 Broadway, by Clare Nelson on a claim of \$15,000. The corporation has a patent process for coloring paper. A receiver was recently appointed for the corporation in an action filed in the Supreme Court of New York County.

M. Gottesman Company, Inc., 18 E. 41st street, wood pulp merchants, which recently moved from the 15th to the 17th floor of the building in which it has long been located, announces its new telephone number as Vanderbilt 4601. Additional trunk line facilities and extensions have been added that insures prompt attention to all telephone communications.

George W. Sisson, Jr., of Potsdam, N. Y., former president of the American Paper and Pulp Association, has adopted the suggestion of Dr. Hugh P. Baker, executive secretary of the association, that he make a trip abroad this summer, traveling with Dr. Baker during the study of paper making conditions abroad to be made for the association. This work will be investigated principally in Scandinavia. Mr. Sisson was in the city Monday arranging for the trip.

W. DuB. Brookings, manager of the Natural Resources Production Department of the Chamber of Commerce of the United States, was in New York Monday discussing with Dr. Baker the details of the report soon to be made by the Forestry Committee of the National Chamber, of which Dr. Baker is vice-chairman. The American Paper and Pulp Association was honored by having its secretary chosen as the forester member of the National Committee.

Herbert Lippitt, with the Brown Company of Portland, Maine, for the past seven years, has become connected with the International Paper Company. Mr. Lippitt will be in charge of a new branch of the company, which is to engage in the manufacture of paper cores. These cores are to feature a metal edge invented by Mr. Dodge, president of the company. The core will be known as the International Core. The offices of the new branch will be at 30 Broad street, New York.

The Cameron Machine Company of Brooklyn, New York, has recently issued a 16-page pamphlet on "Methods of Slitting and Winding Rolls of Paper and Board. This booklet consists of notes of an address to students of Pulp and Paper Manufacture at New York State College of Forestry, given by James A. Cameron on March 20, 1922. In analyzing and comparing methods of slitting and winding rolls of paper and board, it is the writer's effort to bring out the points which will prove helpful to those dealing with cost and waste-saving problems in handling this process.

The Hart Trading Company, Inc., paper dealer located in the Tribune building, New York, recently filed a petition in bankruptcy listing liabilities of \$276,333 and assets of \$261,298, the main items of which are unliquidated claims amounting to \$184,669; accounts, \$56,902; and notes, \$17,737. The liabilities are principally on contingent claims evidenced by suits now pending. These suits include the following: One by the Argos Corporation to recover \$92,747, one by John Eberstein & Co. to recover \$55,750, one by Samuel Alcorn to recover \$22,750 and one by the Interstate Pulp and Paper Company to recover \$9,000. Judge Mack appointed Lawrence Berenson receiver under \$10,000 bond. According to Mr. Berenson, no investigations have yet been made.

### Hagar Paper Co. Protects Streams From Pollution

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, O., May 8, 1922.—The Hagar Strawboard and Paper Company, Cedarville, has installed a modern screening equipment, which will hereafter protect the surrounding streams from pollution by refuse liquors. The appliances have been placed in the plant at a heavy expense, but the management figures that the change will result in economies and will prove to the public that the mill owners have at all times endeavored to co-operate with the county and state authorities in overcoming the difficulties which have been encountered in that section of Greene county.

For many years complaints were forthcoming that liquors from the Cedarville mills destroyed thousands of fish, almost annually. State officials and game and fish protective societies became interested in the matter and the company on several occasions installed equipment which it was hoped would solve the problem, but, until the present, the obstacles seemed to be ever-present. It now is felt that the problem has been met adequately and that hereafter there will be little cause for complaint.

### Champion Fibre Co. Improvements

CANTON, N. C., May 8, 1922.—Champion Fibre Company has doubled the force of men working on construction of the paper-finishing plant in an effort to make up time lost through failure of material to arrive on time, and other causes, and announcement is made from the general manager's office that everything will be in readiness if no further delays are encountered by June 1, just fifteen days less than was originally planned. The new finishing plant will have a rated capacity of 50 tons per day of finished paper, but this production will hardly be attained at the start, nor for several months, as it will take time to get all departments of the big plant into capacity operation.

### Buys Control of Moore & Thompson Paper Co.

[FROM OUR REGULAR CORRESPONDENT.]

BELLOWS FALLS, Vt., May 8, 1922.—Fred L. Thompson has purchased the entire interest in the Moore & Thompson Paper Company, Inc., which is the second largest paper manufacturing concern in this place. Both Mr. Thompson and Mr. Moore are sons of the original organizers and builders of the mills which were erected in 1880. Mr. Thompson expects to reorganize and greatly add to the business of the company, largely increasing the output of the mills.



### These Prospects

Are all waiting for you to take their order for \$5 dispensers and cups—and then will send in regularly repeat orders for Burt's Drinking Cups.

**BURT'S DRINKING CUPS ARE:**  
Lowest in cost. Conical. Always open. Without bottom to fall out or  
**F. N. BURT COMPANY, Ltd.**

set aside on. Withstanding hot drinks. Without wax to affect taste. Trebly reinforced. Without waste in dispensing.

**THREE DOLLARS A DAY  
KEEPS SICKNESS AWAY**  
from 500 people, cutting down sick pay or maintenance expense in factory, office or institution.

:: Paper Cup Division :: Buffalo, N. Y.



# WOOD PULP

## ANNOUNCEMENT

*After May 1st*

*Our Chicago address will be*  
**Suite 1904-1908 Conway Building**  
**111 West Washington St.**

## THE MEAD SALES CO.

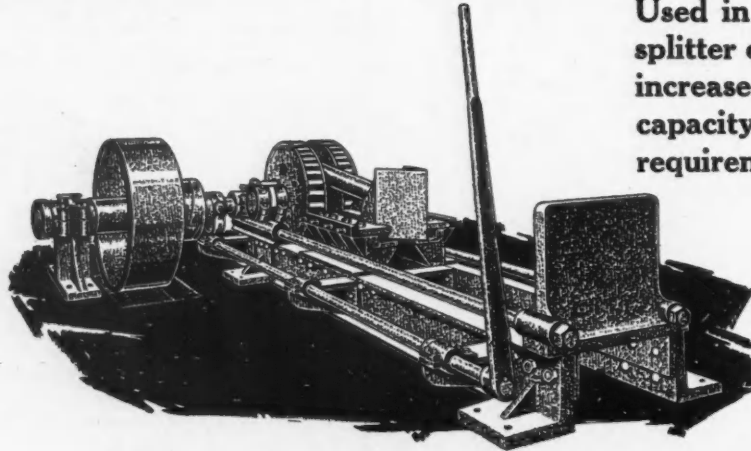
111 West Washington St.,  
Chicago, Ill.

PULP DEPT.

Callahan Bank Bldg.,  
Dayton, Ohio.



## HORIZONTAL WOOD SPLITTERS



Used in mills where a splitter of strength and increased production capacity is an essential requirement.



**THE APPLETON MACHINE COMPANY**

APPLETON WISCONSIN

# "AMERICAN"



PAPER MAKERS TWINE                      TUBE ROPE  
WALL PAPER TWINE                      HAY ROPE  
FINE AND COARSE POLISHED TWINES  
"AMERICAN" BRAND MANILA ROPE  
"AMERICAN" BRAND TRANSMISSION ROPE

The name "AMERICAN" as applied to cordage means "more value in every way." Send for copy of our General Catalogue, Prices and samples. Address Department M.

*Largest Makers of Commercial Twines and Ropes in the World*

**AMERICAN MANUFACTURING CO.**

NOBLE AND WEST STREETS, BROOKLYN, NEW YORK CITY

# CORDAGE



# JEFFREY

## MACHINERY FOR PULP AND PAPER MILLS

*HAS been giving satisfaction in design, durability, service and economy for forty years.*

Includes a complete line of Pulpwood Stackers, Conveyors for handling Logs, Pulpwood, Pulp Laps, Straw, Bark, Coal, Ashes and other materials; Elevators; Portable Loaders and Unloaders; Chains for all Elevating, Conveying and Power Transmission purposes; Coal Crushers; Pulverizers; Shredders; Industrial Locomotives, etc.

*Let our experienced engineers help you to plan the "right equipment" to meet your requirements.*

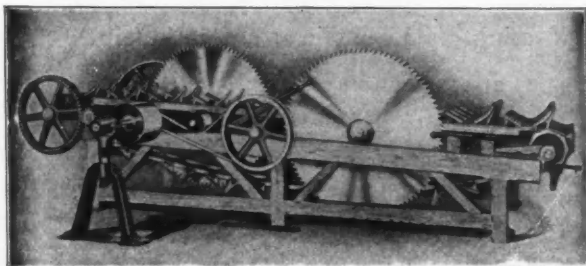
**The Jeffrey Mfg. Co.** 931-99 **Columbus, Ohio**  
North Fourth Street

**Increased Capacity  
Lower Cost Per Cord**

THE

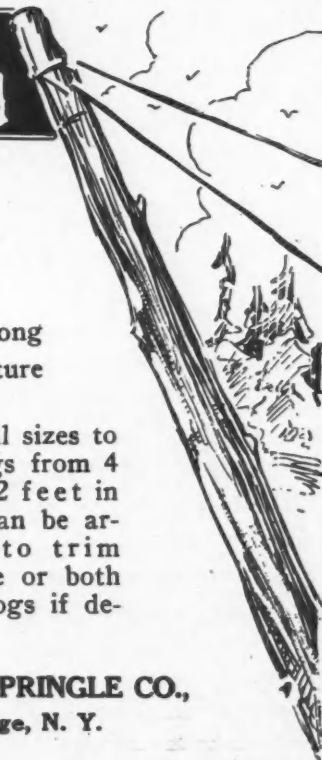
**Ryther Slasher**

is the most efficient and the lowest cost method of reducing long logs to uniform short lengths suitable for further manufacture into pulp and paper.



Built in all sizes to handle logs from 4 feet to 32 feet in length. Can be arranged to trim either one or both ends of logs if desired.

**RYTHER & PRINGLE CO.,**  
Carthage, N. Y.





*Friction—the Unseen Enemy  
of Production in Your Plant*

# 600-W

## *Sharp facts about your Steam Cylinder Lubrication*

**O**NE of the most important factors in the economical operation of a plant is Correct Lubrication.

At no point does the effect of correct lubrication show up more strongly than in the operation of steam cylinders.

*So important is the correct lubrication of steam cylinders that the majority of builders of steam engines throughout the world recommend or approve the use of Gargoyle Cylinder Oil 600-W.*

Gargoyle Cylinder Oil 600-W is more widely used throughout the world than any other brand of steam cylinder oil.

It has been manufactured with scientific exactness by the Vacuum Oil Company for over 40 years. It will

correctly meet a wide range of operating conditions in steam cylinders.

Plant owners whose business policy it is to save maintenance-cost dollars rather than "price-per-gallon" pennies will tell you that Gargoyle Cylinder

---



---

## VACUUM OIL COMPANY

---



---

Oil 600-W is by far the most economical steam cylinder lubricant obtainable.

We have published two valuable pamphlets. One is called "Stationary Steam Engines;" the other is "Gargoyle Cylinder Oil 600-W." We shall be glad to send them to you without charge.

Stocks of Gargoyle Lubricating Oils scientifically correct for every engine and machine need are carried in principal cities throughout the country.

### The Lubrication Audit

Explained Step by Step in Condensed Outline

- INSPECTION:** A thoroughly experienced Vacuum Oil Company representative in co-operation with your plant engineer or superintendent makes a careful survey and record of your mechanical equipment and operating conditions.
- (2) Your operating conditions.
  - (3) Our 56 years of lubricating experience with all types of mechanical equipment under all kinds of operating conditions throughout the world.
  - (4) Our outstanding experience in manufacturing oils for every lubricating need.

**RECOMMENDATIONS:** We later specify, in a written report, the correct oil and correct application of the oil for the efficient and economical operation of each engine and machine. This report is based on:—

- (1) The inspection of the machines in your plant.

**CHECKING:** If, following our recommendations in this audit, you install our oils, periodical calls will be made to check up the continuance of the desired results.

FOR THE ABOVE FREE SERVICE address our nearest branch office.

**Domestic Branches:**

New York (Main Office)	Boston	Chicago	Philadelphia
Detroit	Pittsburgh	Indianapolis	Minneapolis
Des Moines	Buffalo	Rochester	Albany
	Dallas	Kansas City, Kan.	



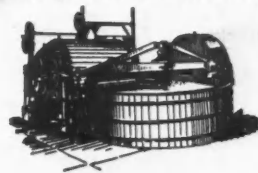
# Lubricating Oils

*A grade for each type of service*

## VACUUM OIL COMPANY

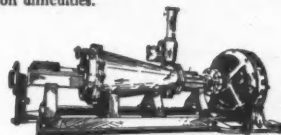
### A Lubrication Audit

in the Paper Industry would point out the Correct Lubrication for the important machines as follows:



**Beaters**

Beater bearings, generally unnecessarily hot, will run cooler if the stock leakage is eliminated and oiling is regularly attended to. The regular use of Gargoyle D. T. E. Oil Extra Heavy overcomes beater lubrication difficulties.



**Jordans**

Because of the high speeds and heavy pressures which are always present, and the side pull on bearings when belt driven, it is necessary to use a heavy bodied oil. For this purpose we recommend Gargoyle Etna Oil Heavy Medium.

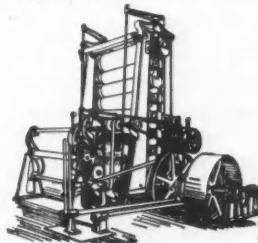
### Paper Machines



For bearings of the paper machine, subjected to induced heat from steam used for drying, an extra heavy bodied oil is required such as Gargoyle

### D. T. E. Oil Extra Heavy.

The rolls at the wet end subjected to moisture and heavy pressure demand a compounded oil which will resist the washing tendency and maintain a perfect oil film. We recommend Gargoyle D. T. E. Oil Heavy X for these specially trying conditions.



**Calenders**

Paper machine production is directly dependent upon uniform speed. Calender bearings are subjected to heavy pressures and high frictional heat. The regular application of Gargoyle D. T. E. Oil Extra Heavy insures uniform speed, and consequently minimizes "broke."

# Editorial

Vol. LXXIV New York, May 11, 1922 No. 19  
FIFTIETH YEAR

## James A. Outterson

In the death of James A. Outterson the pulp and paper industry has suffered a distinct loss. His business interests were wide, but in spite of this tax on his time and energy he always manifested that human interest which endeared him to a wide circle of friends both within and outside of the paper industry.

The outstanding characteristics of Mr. Outterson's life are eloquently summed up in the tributes of numerous representative paper men, his neighbors in the industry for years. Among these, J. V. Baron, vice-president and general manager of the Sherman Paper Company and chairman of the Board of the Black River Regulating District, of which Mr. Outterson was a former member, said of him:

"I have known Mr. Outterson for 20 years and have been closely associated with him for the past three years as a member of the regulating board. He was one of the first commissioners appointed, and the subject of conserving the natural resources of this section has always been near to him. I found him always ready to sacrifice his time and energy to promote the interests of industry and the community. The passing of James A. Outterson is a great loss to the paper industry and to Northern New York. He was endowed with mental faculties of great capacity, which, with his tireless energy, combined to produce a power that was instinctively felt by those who came in contact with him. He was a kind and most sympathetic man, always ready to alleviate suffering wherever he found it, even to the risk of being imposed upon."

Celestin C. Burns, general manager of the St. Regis Paper Company, said: "I regret exceedingly that a man of Mr. Outterson's ability and worth has been lost to the community. I feel that his value to this community and to industry has never been adequately appreciated, but that it will be increasingly appreciated as time goes on. It perhaps is not known generally that, notwithstanding his business activities, he was a real philanthropist. There was probably no man in Northern New York with his financial cares and worries who was doing more in a philanthropic way to help his fellow men. It was only recently that I came to realize the broad extent of the philanthropy he was practising. James A. Outterson will be greatly missed in the life of this community."

Frank L. Moore, former president of the Newton Falls Paper Company, said: "His death is a distinct loss to industry in this part of the state. He was one of the best-known and most popular paper manufacturers and had been wonderfully successful from the first. He was always pleasant and genial and will be very widely mourned. I counted him as one of my close personal friends, and it was a great shock to hear of his death."

B. B. Taggart, president of Taggart Brothers Company, said: "He was one of the pioneers in paper mill building in this section and was a potent factor in the development of the industry in this section. His life was filled with kindly acts and he will be greatly missed by his friends, industry, and the entire community."

Dr. James E. Campbell, president of the Dexter Sulphite Pulp and Paper Company, said: "The death of James A. Outterson came as a great and unhappy surprise to me. 'Jim,' as we all affectionately called him, was one of the pioneers in the paper and pulp industry in our section. His efforts and untiring energy resulted in the organization and upbuilding of no less than seven or eight paper and pulp mills in this locality within the past 25 years. He was a man of ability and rare courage, and one needed only to know him to understand and appreciate his staunch loyalty to his friends. For nearly 25 years he was a business associate and partner, standing four-square during all that close association-ship. His death means a great loss to this community and to that legion of friends he leaves behind him. His friends unite in a prayer that God, in His divine providence, will give comfort and support to his wife and family in their crushing sorrow."

Of him Floyd L. Carlisle, president of the St. Regis Paper Company, said: "James A. Outterson was a pioneer and builder of many mills and contributed tremendously to the industrial life of northern New York. The village of Carthage is very largely the outgrowth of Mr. Outterson's vision, courage and ability. A number of the mills he built are now found in other hands, but his death is very unfortunate at this time, as he was still active in the management of several companies. He was always a man who was developing things and going ahead. Personally, he was a most lovable and honorable business man. Everyone in the paper business respected, admired and loved him."

Mr. Outterson will be greatly missed by the paper industry, but his memory cannot fail to furnish inspiration to all who had the good fortune to know him personally.

## Drying of Paper

At the annual convention of the Technical Association of the Pulp and Paper Industry, one of the subjects of active interest was the drying of paper. At a sectional meeting on the subject which occupied two sessions, many valuable points were brought out and it is believed that material progress was made.

Among those participating in the discussion and who furnished different viewpoints, F. C. Clark, chairman of the Service to Members Committee, emphasized the value of the calculation of the pounds of paper dried per square foot of drying surface per hour. This, he pointed out, serves as a basis of comparison between different machines and comparison of the drying of different grades and weights on identical machines.

M. B. Littlefield, in his paper, presented what was regarded as an extremely valuable contribution to the subject. He tabulated the results of tests made and showed the rate of drying under different manufacturing conditions. It was believed that such a line of investigation will be particularly valuable in studying the drying of paper of certain grades where the quality as affected by the drying operation is of prime importance. Discussion by F. C. Farnsworth emphasized this point in particular.

O. F. Bryant and E. B. Wardle of the Laurentide Company, presented the data of a preliminary study of the drying efficiency of two machines on news print with different

operating conditions. They followed the lines suggested by the committee of computing the results in heat units used per pound of water evaporated. In the general discussion it was brought out that this method of attack is in conformity with engineering practice. Certain standards were agreed upon for the work which will be carried on during the year. These referred particularly to the temperature of vaporization as well as other points.

While the procedure agreed upon was fixed, it was brought out that the factor in general use by many mills is the pounds of steam used per pound of paper made and it is probable that some arrangement will be made in future studies to bring the engineering data presented to some such figure. It must be remembered that the heat units and the weight of the water evaporated in a given time, is the only basic figure which engineers can use. It was also recognized that the figures most readily obtained as records in a mill, are the pounds of steam to the machine, by a flowmeter, and the paper production. It is also recognized that the factor of pounds of steam per pound of paper, is a ready means of showing general efficiency. It must be remembered that into this factor several features enter that may vitiate the results for comparative purposes. These factors are the quality of the steam, the quantity and heat of the condensate, the initial and final moisture content of the paper, the temperature of the stock, and the heat supplied to the ventilating air as well as that contained in the steam exhaust to the atmosphere. Another factor which is not usually fully appreciated is the radiation loss from the building. In some plants the heat so applied has been found equal to that used in the drying operation.

In one of the studies made in drying news print under conditions where the loss by radiation from the building could be neglected and under the conditions of the test it was found that approximately 2 pounds of steam were theoretically required to dry a pound of paper while 2.6 pounds were actually used. The difference, of course, was carried away by the ventilating air.

It is reliably reported that developments may be expected at an early date on the application of vacuum or reduced pressure, in a commercial way, to the drying of paper. The results, if successful, will prove very far-reaching, particularly in the reduced cost of building and equipment required. In the drying itself the vacuum principle would introduce a more constant temperature difference in evaporation besides reducing the radiation loss of the machine and eliminating the heat required for removing the moisture. On the opposite side would be required the power necessary to maintain the degree of vacuum.

Another line of development on which a number of investigators are working, is the use of electricity in the drying of paper. Experimentally, at least, the results are promising. Recently paper made on a semi-commercial machine equipped with an electrically heated dry end was exhibited and the quality of the product found eminently satisfactory. The cost of the installation and the electricity required would seem to be the two chief factors to be considered. Combining it with

reduced pressure it would appear to have possibilities particularly where there is a surplus of electric power. In the consideration of the machine drying of special papers of quality, such as tub-sized bond, and certain boards, it was brought out that possibly a control of the rate of drying together with the control of the humidity conditions is the proper course of investigation.

The papers presented at the convention, with the full discussion on this and other subjects, will be published in *Technical Association Papers, Series V*, which are being prepared.

### A. P. & P. A. Against Duty on Casein

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 10, 1922—The American Paper and Pulp Association last week filed the following brief with the Senate Finance Committee protesting against the proposed amendment to the tariff bill calling for a duty of four cents per pound on casein as already announced by PAPER TRADE JOURNAL.

The concluding paragraphs of this brief are as follows:

"At ocean freight rates as at present quoted, casein can be shipped from the Argentine—our chief source of supply—to Germany or England and back to the United States for approximately one cent per pound. As Germany and England are the principal competitors of United States book manufacturers, a duty on casein of two to five cents per pound would give this very important raw material to our competing European countries at a cost of one to four cents per pound less than to our domestic manufacturers, especially where delivered to the United States in the form of coated paper.

"The above statements make it very clear that there are absolutely no grounds for a duty of any kind on casein. With the market for book paper so dull in this country that many book paper manufacturing plants are running at third to half time only, and then at a loss, the addition of a tariff on raw materials used in the manufacture of book paper would put many of the mills absolutely out of business, and delay, possibly for a very long time, the return of the industry to anywhere near normal."

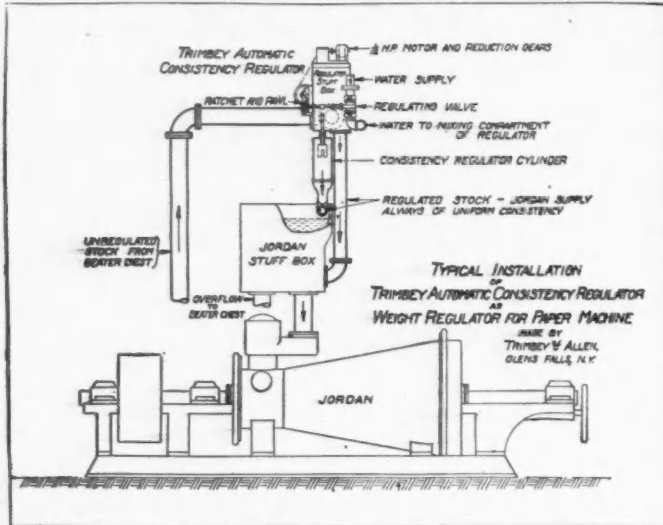
### Paper Men Help Establish Communal Forest

The paper industry can claim some share of credit for the establishment of a communal forest at Yonkers on Saturday, May 6, when the New York State Forestry Association supervised the planting in co-operation with the Boy Scouts. It was the first of a series of similar plantings proposed for other parts of the state by the Forestry Association, as an educational step toward securing the reforestation of pulpwood lands on a commercial scale.

The planting developed as the result of a conference between the secretary of the Forestry Association, J. R. Simmons, and the New York Forest Club, of which O. M. Porter, assistant secretary of the American Paper and Pulp Association, and secretary of its woodlands section, is also secretary. Dr. Hugh P. Baker, secretary of the American Paper and Pulp Association was the moving spirit in the founding of the forestry association, and the co-operation with the Yonkers Boy Scouts was secured through R. S. Kellogg, secretary of the News Print Service Bureau, who is one of the vice-presidents of the Yonkers Scout council. Mr. Kellogg served as one of the judges of the planting. Warren B. Bullock, director of the American Paper and Pulp Association's Information Service, was active as head of the Yonkers troop which claims credit for planting the largest number of trees during the day.

The Scouts planted 4,700 trees, and the success of the planting was such that it will probably be made an annual feature at Yonkers, until the entire city water reservoir, the Grassy Sprain reservoir, over three miles long, is planted.

# UNIFORM STOCK



This is the machine that will regulate your paper stock to a uniform consistency, thus insuring **UNIFORM BRUSHING ACTION** at the Jordan. Given stock of uniform character and consistency going on to the wire you will get **UNIFORM WEIGHTS** and **UNIFORM RUNNING CONDITIONS**.

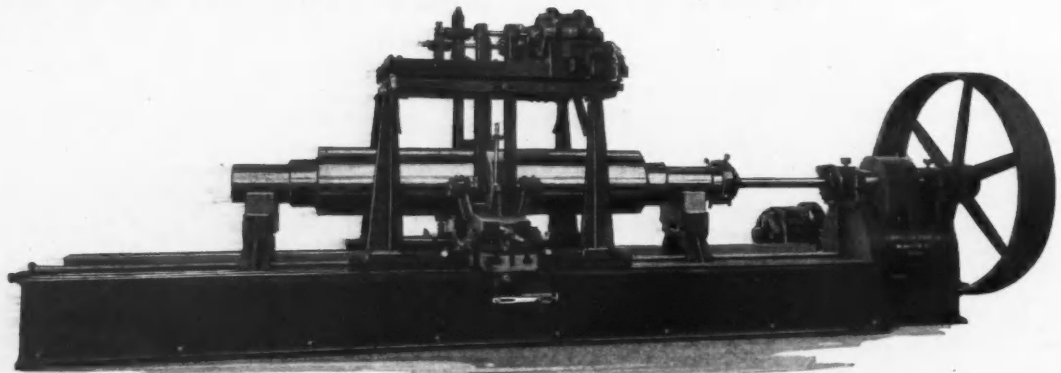
This regulator will also cause to be delivered at Beaters, Mixers or Bleachers, stock of a set, uniform consistency.

**TRIMBEY MACHINE WORKS**

M. G. TIBBITTS, Sales Manager

**Glens Falls, N. Y.**

**LOBDELL** **ROLL GRINDERS** are the only machines of the kind fitted with automatic crowning device which develops a perfect crown without the use of a guide or former and repeated trying for the correct setting.



**LOBDELL** Calenders are equipped with Patent Electric Motor, Hydraulic or Ratchet Lift all operated from the floor.

**LOBDELL** Micrometer Calipers are handy and accurate.

**LOBDELL CAR WHEEL CO.** Est. 1836 **Wilmington, Del. U. S. A.**

## Section of the

# Technical Association of the Pulp and Paper Industry



AN ORGANIZATION FOR THE ENCOURAGEMENT OF ORIGINAL INVESTIGATION AND RESEARCH WORK IN MILL ENGINEERING AND THE CHEMISTRY OF PAPER, CELLULOSE AND PAPER-MAKING FIBERS GENERALLY; IT AIMS TO PROVIDE MEANS FOR THE INTERCHANGE OF IDEAS AMONG ITS MEMBERS IN ORDER THAT PROCESSES OF MANUFACTURE MAY BE MADE MORE EFFICIENT AND IMPROVED ALONG TECHNICAL LINES.



Conducted by W.G. MacNAUGHTON, Secretary

## SUMMER MEETING OF CANADIAN TECHNICAL SECTION

The members of the Technical Association of the Pulp and Paper Industry have received a very cordial invitation from Edward Beck, Secretary of the Canadian Pulp and Paper Association, and from O. F. Bryant, Chairman of the Canadian Technical Section to attend the summer meeting of the Technical Section at Iroquois Falls, Ont., June 19-23.

The formal announcement has just been received and is given herewith:

Plans for the summer meeting of the Technical Section at Iroquois Falls, Ont., are now well under way. Their completion depends in part upon a knowledge of how many members are prepared to attend. The object of this circular is to invite the members to signify their intentions.

As already announced, the Executive Council has accepted, on behalf of the members, an invitation from the Abitibi Power & Paper Company, Limited, to visit the company's mill at Iroquois Falls, Ont., on June 20 and 21.

If a sufficient number agree to attend special cars will be engaged to convey the members from Montreal and Toronto, respectively, leaving those cities on regular G. T. R. trains on Monday evening, June 19, connecting at North Bay on the following morning, leaving North Bay via T. N. & O. R., at 9.10 a. m. and arriving at Iroquois Falls at 6.25 p. m. on Tuesday, June 20.

Wednesday, June 21, and Thursday morning, June 22, will be devoted to an inspection of the Abitibi plant.

Returning, the party will leave Iroquois Falls on Thursday, June 22, at 1.15 p. m., arriving at North Bay at 10.30 p. m. and at Montreal and Toronto, respectively, the following morning.

Twenty-five first-class fares are required in addition to the charge of \$266 for each special pullman. The committee hopes that enough acceptances will be sent in to justify engaging two "specials," one from Toronto and one from Montreal.

First-class return fare will be as follows:

From Montreal to Iroquois Falls and return .....	\$35.95
From Toronto to Iroquois Falls and return .....	\$28.90

In addition, there will be a *pro rata* charge for sleeper, the exact amount depending upon the number of excursionists, which probably will not exceed \$15.00.

Meals will be obtainable on the train or at the hotel at Iroquois Falls.

During the stay at Iroquois Falls ample opportunity will be afforded to inspect the Abitibi mill and power plant, which, as every one knows, are unique in many respects among news print mills. R. A. McInnis, general manager of the company, and R. W. Hovey, our vice-chairman, have the local arrangements in hand which is

a guarantee that nothing will be overlooked to provide for the success of the meeting.

The Executive Council feels that the opportunity is one from both an educational and a recreation standpoint no member will want to miss.

It is urgently necessary that the committee should know as early as possible how many members will attend, since much of the detail of the arrangements depends upon the number who will participate. The committee therefore urges you to fill out the enclosed card, signifying your intention to attend or otherwise, and to mail the same to the secretary, 701 Drummond Building, Montreal, *immediately*.

The invitation is signed by the committee of arrangements consisting of R. W. Hovey, C. Nelson Gain, A. L. Dawe, J. N. Stephenson, Edward Beck.

This meeting affords an excellent opportunity for our members to see the famous plant of the Abitibi and the town of Iroquois Falls. It is hoped that many will avail themselves of the invitation.

Those planning to attend should notify Edward Beck, secretary, Canadian Pulp and Paper Association, 701 Drummond Building, 511 St. Catherine street, Montreal.

### Executive Committee Meets

With only three of its members absent, the Executive Committee of the Technical Association of the Pulp and Paper Industry spent two profitable days, May 4 and 5, in their meeting at Woronoco, Mass. The committee made its headquarters at Strathmore Inn as guests of the Strathmore Paper Company.

Among the various things accomplished was the selection of chairmen for the standing committees. Suggestions will be made as to the membership of these committees. In accordance with suggestions which had been approved regarding the creation of new committees, it was decided to arrange for one dealing with cellulose and another which would devote itself to the elimination of waste in the industry.

Tentative plans were made for a fall meeting and when these have assumed a more definite form an announcement will be made. A campaign for new members was also a topic of discussion, and plans for this are well under way.

The following men were present at the meeting: George E. Williamson, of the Strathmore Paper Company and President of the Association; R. S. Kellogg, Secretary of the News Print Service Bureau; E. C. Tucker, Crocker-McElwain Company, Holyoke, Mass.; Raymond S. Hatch, General Superintendent of the Hamersley Manufacturing Company, Garfield, N. J.; W. G. MacNaughton, Secretary of the Technical Association.

## A NEW DEVELOPMENT IN MANUFACTURING WATER PROOF PAPER OR BOARD

BY L. KIRSCHBRAUN, CH. E., THE FLINTKOTE CO., LITTLE FERRY, N. J.

During the past years there has been in the course of development a process which should become of interest to the paper making industry in general.

This process has been developed in the plants and research

opened with important applications to many other products made on the paper machine. The operation as now developed functions as a means of waterproofing, moistureproofing and strengthening various paper products, and is particularly effective in connection

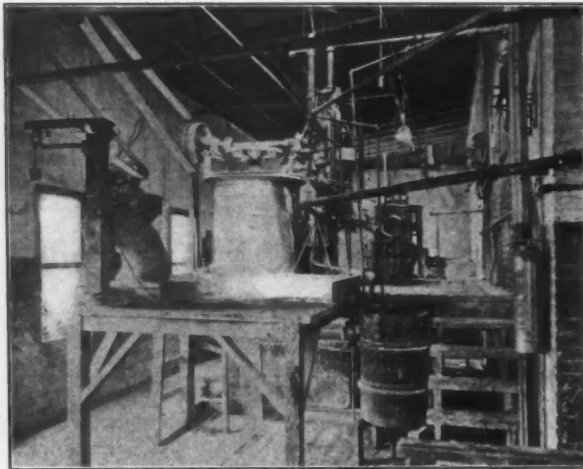


FIG. 1

Asphalt Emulsifying Apparatus Showing Scales for Weighing the Clay—Clay Mixing Tank—Asphalt Emulsifier to the Rear of Clay Mixer—Clay Storage Tank Below Clay Mixer.

laboratories of the Flintkote Company, and has for a considerable time attained a stage of continuous and successful commercial operation.

The process has to do with the waterproofing of fibrous stock on the paper machine, by the introduction of asphalt simultaneously

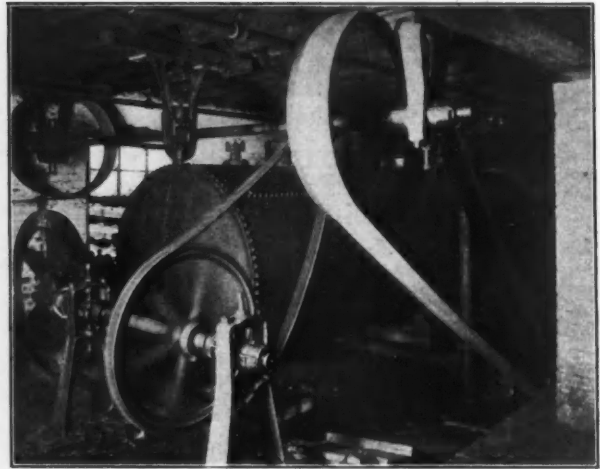


FIG. 3

Emulsified Asphalt Storage Tank With Agitator and Pump to Supply the Paper Machine.

with the manufacture of insulating and sheathing papers, box board, wall board, containers, bag papers—in fact any product in which the above elements are a consideration.

To the conservative paper maker the suggestion of mixing and forming asphalt with fibrous stock in contact with wire, felts and

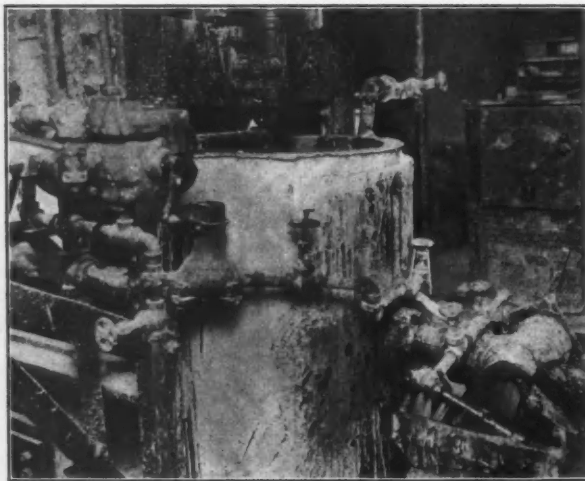


FIG. 2

Close Up View of Asphalt Emulsifier. To Left Upper Is Shown Steam Jacketed Asphalt Meter. Below Is Water Meter. Agitator Shaft Shown in Center of Emulsifier. At Lower Right Is Shown the Continuous Stream of Emulsified Asphalt Together With Diluting Water.

with the formation of the sheet. Originally this development was directed to those products which the Flintkote Company was directly marketing, such as roofing, flooring and building papers, but as the work progressed it appeared that a much wider field was

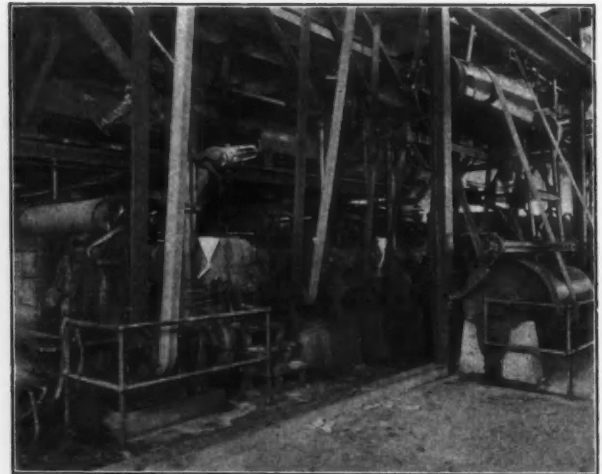


FIG. 4

Wet End of Cylinder Machine Making Sheathing Paper Using Emulsified Asphalt on Two of the Four Cylinders. Emulsified Asphalt Inlets to the Suction of the Fan Pump Is Shown as White Funnels.

presses of the standard paper machine, may at first appear somewhat startling. Nevertheless, as the fundamental principles are understood it becomes evident that the process is founded upon a sound, scientific and practical basis. It has been witnessed by many paper makers in commercial operation.



**Fundamental Feature of the Process**

The fundamental feature of the process resides in rendering asphalt, or similar pitchy material, non-sticky. This has been accomplished by a process of emulsification by which the asphalt is dispersed by an emulsifying agent, into a non-adhesive emulsion. The emulsifying medium may be of several kinds, but in practice it has been found advantageous to use a highly colloidal clay. The emulsifying operation causes the asphalt to be broken up or dispersed as exceedingly minute particles upon which the clay probably becomes heavily absorbed as a protective and insulating coating. This coating is only broken down upon the removal of the water, and application of sufficient heat by means of driers, to produce coalescence of the asphalt particles.

The asphalt then becomes a continuous medium and resumes its normal properties.

An apparatus has been designed which emulsifies the asphalt at the rate of more than a ton an hour, the elements of the emulsion being metered through the emulsifier in the presence of a bulk supply of the emulsion, and the finished emulsion being produced and withdrawn continuously for use with the paper stock. The emul-

be introduced by merely providing the necessary piping to bring it to the fan pumps.

By selecting the proper character of asphalt, sheets or board of various stiffness or pliability may be secured. By regulating the quantity of asphalt the product may be rendered waterproof; *i. e.*, capable of resisting passage of water liquid indefinitely; or the product may be made moistureproof, that is capable of resisting the passage of moisture laden air so as to preserve the moisture content of the packaged article for an extended period of time.

Extended laboratory, as well as commercial operations have developed the technique of producing either waterproof or moistureproof characteristics, and have revealed different requirements in this respect, which are not readily apparent to the average consumer or operator.

An interesting phase of these investigations has developed the fact that the effect of introducing the asphalt on the paper machine with the paper stock achieves a higher degree of resistance to water than results when raw paper or felt is saturated in a bath of hot asphalt in accordance with the usual practice obtaining in a saturating plant. A series of comparative tests are given below:

**TABLE A**

**Moisture Loss of Water Filled Package of Paper Made by KB Process as Compared With One of Tank Saturated Paper**

Identification	Total caliper sq. ft.	Wt. 500 sq. ft.	Caliper asphalt ply	% saturation asphalt ply	Per cent loss in days					
					7	14	21	28	35	56
Light board KB No. 17	22	46	14	110	2.9	6.0	8.5	10.6	15.1	....
Tank saturated flooring felt. Rutherford Mill No. 43.	46	102	solid	168	2.6	6.2	10.0	14.5	20.9	....
Tank saturated Ballston bogus No. 59	14	30	solid	87.2	4.9	10.8	16.0	20.7	....	42.3
KB Sheathing Red-Black No. 13	20	41.5	15	102	1.6	3.4	5.3	6.9	....	14.4

Packages 3¼ x 2¼ x 5¼, containing 500 ccs. of water, two-thirds full.

sifying unit comprises tanks for the asphalt, clay mixers, storage tanks for clay, pumps, emulsifier and sufficient storage tanks for finished emulsion to adequately supply the requirements of the paper machine.

**As Carried on Commercially**

As carried on commercially, the emulsion is handled by pumps just as any other stock or liquid, and may be introduced into the system either by admixture with fibre in the beaters, or at the paper machine. The manner of introduction depends upon various

It will be seen that a lesser content of asphalt introduced on the machine produces greater waterproofing effect, and that a lesser thickness of such treated stock is more effective than actual immersion by tank saturation. This is apparently due to closeness of formation, wet pressing, and to the introduction of asphalt cold as against hot absorption and subsequent contraction and production of pore spaces in the tank saturated product.

A few tests of commodities packaged in asphalt processed board are given below:

**TABLE B**

Identification	Caliper	Filled with	Per cent loss in days					
			7	14	21	28	35	42
KB asphalted board No. 17 made at Little Ferry	22	Sawdust 40% wet	8.0%	17.7%	23.2%	27.2%	28.1%	....
KB asphalted board No. 17 made at Little Ferry	22	500 ccs. water	2.9	6.0	8.5	10.6	15.1	17.3%
KB asphalted board No. 17 made at Little Ferry	22	Salt	.0	.0	.1	.1	.1	.3
KB asphalted board No. 17 made at Little Ferry	22	Scap powder	.9	1.0	1.2	2.1	2.6	3.5
KB asphalted board No. 17 made at Little Ferry	22	Sal soda	.5	.9	1.1	1.5	1.9	2.8
KB asphalted board No. 17 made at Little Ferry	22	Calc. chloride	1.6	2.3	3.6	4.7	5.7	6.7 gain
Untreated chip	20	Calc. chloride	Wet through and collapsed on fourth day.					
Untreated chip	20	Soap powder	8.5	11.0	16.3	18.5	21.8	26.8
Untreated board	25	Sal soda	4.8	8.8	11.4	13.6	17.6	23.4

considerations which need not be discussed here, but in the plants operating, it has been found convenient to handle the emulsion at the machine by introducing it into the suction side of the fan pumps which withdraw water from the inside of the cylinder moulds to return to the screens with the raw stock on its way to the vats. In either case a fixing agent is provided which sets the asphalt particles upon the fibres and carries it into the formation without disturbance. The proportion of asphalt is regulated by the machine runner by valves, with the same ease and efficiency as the stock is regulated. This procedure lends itself to quick control,—in fact a machine may be running its usual untreated paper and within a few minutes after the introduction of the asphalt, the waterproofed sheet will come over without any change in speed, caliper, or drying, the asphalt being contained in as many cylinders as may serve the object to be attained.

**No Special Attachments Required**

There are no special attachments required, and no changes of the equipment of the wet end of the machine, as the emulsion may

An added feature of commercial importance lies in the increase of strength resulting from the introduction of asphalt into the sheet. This is a factor dependent somewhat on the character of stock treated, and upon the mechanical equipment in the way of presses at the wet end. As an illustration is cited a run made in an important eastern board mill in which the following data were recorded.

**TABLE C**

Identification	Caliper	Wt. 500 sq. ft.	Mul-ten test	Caliper asphalted plies	Per cent saturated asphalted plies
Regular board before introduction of asphalt	34	63	80	None	None
Asphalt on No. 2 cylinder	34	66	91	8	27.6
Asphalt on No. 2 and No. 5 cylinders	34	71	110	..	54.5
Asphalt on No. 2 and No. 3 cylinders	34	72	122	11	82.7
Asphalt on No. 2 and No. 3 cylinders—machine speeded up	26	53	80	9	56.7

**Does Not Retard Drying**

It will be observed that the introduction of asphalt acts as a loading material without retarding drying, and the tonnage is substantially increased in the proportion in which it is added. Where

it is feasible to substitute a thinner asphalted board of the same strength as the thicker untreated board, the practical effect upon production is to increase tonnage, as well as sheetage or yardage of product.

The utility of this feature of the process is expected to find an extended field.

#### A Practical Feature

Ordinarily, mixed paper stocks containing asphalts are troublesome on the machine, as the asphalt works up with the stock in relatively large comminuted particles. A practical feature of importance however, in this connection, lies in the ability to recover

and reuse the broke and trim from paper processed in the manner described.

While other pitches may be used in a similar manner, the absence of any odor or taste, and the relative cheapness afforded by asphalt renders it a prime material for the purpose of packaging food articles. Where color is a consideration Rosin, Wax Tailings, and other colorable products of an analogous nature may be employed.

A research organization is being maintained by the Flintkote Company devoted to the handling of various phases of this application to the paper and other industries. The process described has been covered by patents in all countries.

## FUEL OIL IN PAPER MILLS OF PACIFIC COAST

B. T. MCBAIN, DIRECTOR OF MANUFACTURING, NEKOOSA-EDWARDS PAPER COMPANY, PORT EDWARDS, WIS.

(Reprinted from N. E. P. Co. Bulletin)

Since 1904 the paper mills of the Pacific Coast have been using California fuel oil of asphaltum base for fuel. Before that date, they were using red fir cordwood and when the change was made, it was found that a cord of such wood was worth 2.56 barrels of oil at 42 gallons per barrel (California barrels).

California fuel oil has a gravity of around 17 and a B. t. u. value of average around 18,000. It evaporates in efficient plants, around 15 pounds of water per pound of oil from and at 212 degrees.

When oil was first used, it cost around 75 cents per barrel of 42 gallons delivered at Portland, Ore., and other ocean points, and was there transferred from oceangoing vessels to storage tanks and delivered to the mills by barge, from 2,000 to 4,000 barrels at a time. The total cost did not exceed 80 cents per barrel at the mills.

#### Cost Increased During War

During the war, however, fuel oil, like many other items, became scarcer from month to month, and under the Fuel Administration it became a very difficult matter to secure all that was needed at any price, some going as high as \$3 per barrel. Many Pacific Coast mills, in all lines of endeavor, found it necessary to change over to coal, wood and hog, and some to electricity in great part, though the Hawley Mills and Crown Willamette Company Divisions at Oregon City and West Linn remained on oil.

At Ocean Falls, B. C., and at Powell River, arrangements were quickly made for coal from mines close by. At Camas, Wash., hog fuel in great part was used, at great installation cost for a fleet of barges to handle this fuel from saw mills to furnaces. At Lebanon, Ore., cordwood and slud from saw mills became the fuel once more in demand.

Many grades of fuel oil have been supplied by the competing oil companies of the Pacific Coast, but on the average, the specifications given apply. Many kinds of burners have been tried, but up to the time the writer left the Pacific Coast a year ago, no satisfactory air burner had been found, except for marine use, all of the mills using one form or another of steam atomizing burner, the "Best" patent, I believe, being the best and giving the greatest satisfaction.

#### Cleanest and Most Efficient Fuel

Fuel oil is the cleanest, easiest fired, safest and most efficient fuel with which I have ever come in contact, and with the bringing of the ocean to the Middle West when the new international canal is built, may be found more economical even as against coal in these parts, because  $3\frac{3}{4}$  to 4 barrels of 42 gallons each have as much fuel value as the average ton of coal, while the cost of firing and the efficiencies are enough greater to warrant the changes even at the same value.

Who knows what the future may bring here?

As some of the new Canadian mills are to use oil, and recent articles on its use having been printed, this information may supplement that given.

#### High Head vs. Elevated Breast Roll

B. T. MCBAIN, DIRECTOR OF MANUFACTURING, NEKOOSA-EDWARDS PAPER COMPANY, PORT EDWARDS, WIS.

For the past two weeks the 164" Bagley & Sewall Sectional Drive machine at Three Rivers, Quebec, in the new mills of St. Maurice Lumber Company has been in satisfactory operation, with the breast roll one inch below level, and while on April 15 it was only running 725' per minute, the formation was the best of all the new fast-running machines I have seen and the machine running very safe.

Much has been said of late in trade papers and at conventions here and in Canada and abroad regarding the elevated breast roll, high slice, and high head in flow box, the latter two with level wire, also as to the height the head should be carried for various speeds.

At Three Rivers on the date mentioned, Mr. Gauthier, representing the Bagley & Sewall Company, had only 18" of stock behind the slice, and the slice up a sufficient amount to allow a flow of stock deep enough to catch up with the wire as it ran away from under it. While this is not my idea of the ideal condition, thinking better that the stock be carried high enough behind the slice, or in the flow box, to allow of delivery to the wire as fast or a fraction faster than the wire is traveling, still the sheet was of wonderful formation and very close to weight, showing clearly to me that there is nothing to the claim that a proper formation can only be secured by a combination of high or elevated breast roll and high head behind the slice.

In the first place, the principle of the Eibel Process has been in use for nearly forty years and is nothing new or patentable, with all due respect to patent offices and judges to the contrary notwithstanding, having been first applied on the Pacific Coast early in the eighties and later at Palmer Falls in the nineties and doubtless in other places, but whether new or patentable, matters not, the principles of hydraulics are not patentable, but do apply to the manufacture of paper in the formation of a sheet just as much as they apply at the power dam and many places between that point and the point at issue.

I am indebted to Philip T. Dodge, president of the International Paper Company, for permission to visit the Company's Three Rivers, Quebec, plant, and was pleased to learn while there that a wire had been received by the erecting engineers from Allan Curtis, manager of the manufacturing department, to install the other machines with level wire.

# CONTRIBUTIONS TO A MORE EXACT KNOWLEDGE OF THE CHEMICAL COMPOSITION OF SPRUCE WOOD\*

BY PROF. DR. PETER KLASON AND OSCAR FAGERLIND

## PART II.

In part I of these contributions it is shown that there can be isolated a calcium salt of a composition in simplest form corresponding to the formula  $C_{40}H_{44}O_{17}S_2Ca$  from the waste liquor obtained in the cooking of spruce wood with a solution of acid calcium sulphite. The organic substance forming a part of this has therefore the composition  $C_{40}H_{44}O_{17}$ . Since the lignin no doubt is combined to the sulphurous acid in the sulphite digestion, this formula  $C_{40}H_{44}O_{17}$  should give the composition of the lignin itself. On the other hand, since the lignin has several properties and reactions in common with coniferyl alcohol, we might assume that this depends on a fundamental similarity in the constructions of these two compounds. Really no facts disagree with the assumption that the lignin should be a condensation product of oxiconiferyl alcohol. Since, however, only a part of the calcium lignosulphonate in the liquor could be precipitated with calcium chloride, it is plausible that the lignin is not a homogenous substance. As was shown in the preceding part, it is possible to conceive that part of the lignin, the calcium sulphonate of which is not precipitated by calcium chloride, as containing hydroxyl instead of methoxyl. Such lignin as calcium sulphonate must of course represent the more easily soluble form. In order to advance the knowledge of the lignin it is evidently desirable to obtain it directly from the wood and in such a manner which, as far as possible, assures us that it has not been changed in the extraction process.

Another important question which also needs to be solved is whether the lignin in the wood exists in combination with sugar or other carbohydrates as a kind of glucosides or whether the lignin exists as such in more or less condensed form, i. e., not combined to carbohydrates in the wood, which latter consequently also exist in more or less condensed form. At the outset of this investigation we were inclined to favor the first conception. In order to solve this problem all mineral acids had to be avoided in the extraction of the wood to avoid any inversion of the possible compounds formed by the lignin and the carbohydrates. No other solvent than water could therefore be employed. The possibilities of success were not great, indeed. The experience, however, taught us that the wood was very much more soluble in water than what is generally believed. Using this solvent we could, not without considerable work, however, extract about 12 per cent of the dry wood.

### Extraction of Spruce Wood with Boiling Water

At first we used spruce wood chips, such as are prepared at the sulphite mills for the digestion process.

Knots were carefully separated, and by ether extraction rosin, oil and fat was first taken out.

To 650 g. spruce wood, prepared in the described manner, 3 to 4 liters of water were added and then steam let in until it was boiling at atmospheric pressure for about 8 hours. After cooling, a part was filtered and the specific gravity determined by means of a pycnometer. It was found to be 1.00067 at 15°C., corresponding to 0.17 per cent sugar. The weight of the solution was 3.65 kg.; therefore about 6.2 g. had been extracted from the wood. The liquid was poured out and replaced with pure water and this procedure was repeated 8 times. Hereby 18.5 kg. solution was obtained calculated to contain 32.7 g. dissolved substance or about 5 per cent of the weight of the wood. The faintly yellowish solution

was slightly acid and had a bitter taste. It was concentrated in vacuo to 870 g. of a turbid liquid. The precipitate was filtered and weighed 0.8 g. This substance was soluble in alcohol and gave the following result upon elementary analysis:

0.3449 g. lost 0.0139 g. water over phosphoric acid anhydride, left 0.0085 g. ashes in combustion and gave 0.7300 g. carbonic acid and 0.1593 g. water.

From this the following composition of the dry and ash-free substance is calculated:

Carbon .....	61.74%
Hydrogen .....	5.53%
Oxygen .....	32.73%
	100.00%

The concentrated aqueous solution was investigated as to its behavior towards Fehling's solution. At first a direct determination of the dry substance was made, showing 100 cc. to contain 3.06 g. or 26.62 g. in the whole quantity of solution.

I. Twenty-five (25) cc. of this solution, containing 0.765 g. dry substance, were diluted to 100 cc., 20 cc. of this, equal to 0.153 g. dry substance, consumed 5.38 cc. Fehling's copper solution.

II. Twenty-five (25) cc. were inverted during 5 minutes by means of 2% hydrochloric acid at 70° C. and diluted to 100 cc., of which 20 cc. = 0.153 g. dry substance, consumed 5.7 cc. copper solution.

III. Same as above, but inversion during 10 minutes. Copper consumption 5.53 cc.

The result of this investigation consequently was that there could be extracted from the wood by means of boiling with water only (1) a rosin, having about the same composition as that extracted by Klason<sup>1</sup> with alcoholic hydrochloric acid, (2) a water-soluble, difficultly inverted carbohydrate, having about one third the reducing power towards Fehling's solution compared to inverted cane sugar. We could therefore hope to have found a method, permitting the preparation of lignin as well as of carbohydrates from the wood, giving them in fundamentally the same form as they exist in the wood.

### Extraction of Spruce Wood Alternately with Water and Alcohol

For this purpose 986 g. mechanical pulp from spruce wood obtained from the Bosjö mill was cut into sheets, extracted with ether and dried. The rosin free mass was boiled in the same manner as the former, was allowed to percolate on a cloth and strongly pressed. The liquid was filtered and evaporated in vacuo from 4 to 0.2 kg. The press cake was agitated in 3 to 4 liters of alcohol and left standing for 12 hours, whereupon the alcohol extract was strained off and pressed out. After filtration this was also concentrated in vacuo, which gave a light yellow, granular precipitate and an emulsion. The procedure was repeated thirty times, the first eight with pure water, but later with an addition of ½ per cent acetic acid at the beginning of each cook. All the water solutions were united and alcohol added to them to avoid the formation of mould, which otherwise very rapidly sets in. They were later concentrated to 972 cc. and diluted with alcohol to 1.28 liter. Before this mixture had been shaken a big, white, flocculent precipitate was formed, pointing to a content of gum in the solution. Ten (10) cc. of the solution contained 0.680 g. dry substance,

\*A translation of "Bidrag till närmare kännedom om granvedens kemiska sammansättning. II.," by Carl L. Fineman and W. E. Byron Baker. See footnote at beginning of part I printed in the Technical Section of the PAPER TRADE JOURNAL of May 4, 1922.

<sup>1</sup>Kem. Tidskrift; afd. Kemi 1893, s 55.

the total solution consequently 87.04 g. or about 10 per cent of the dry wood substance. When the solution had been standing for some time a slimy, dark colored sediment was formed.

By concentration of the alcohol solutions in vacuo 7 kg. of an emulsion with a granular precipitate at the bottom was obtained. This precipitate was easily dissolved in alcohol. The emulsion was further concentrated in vacuo to 2 liters and shaken with 0.2 liter ether, whereby it agglomerated and could be separated as a rosin. This was also dissolved in alcohol and united with the former, whereupon the solution was left to evaporate voluntarily. A syrupy, dark brown mass was obtained, which at last could be ground to a light brown powder, weighing 18.0 g.,=2 per cent of the weight of the dry wood.

Consequently there had been extracted with water and alcohol 12 per cent of the weight of the wood.

#### Investigation of the Water Extract

At first the "gum" observed upon the addition of alcohol was investigated. Two hundred (200) cc. alcohol was added to 100 cc. of the solution which gave a grey, flocculent precipitate. This was taken on a filter, washed with alcohol and ether and dried in a desiccator. This gave 3,946 g. of a loose (soft), light brown powder. It amounted to about 60 per cent of the dry substance or 6 per cent of the wood. Elementary analysis was performed with the following results:

0.3057 g. lost 0.0233 g. water over phosphoric acid anhydride, gave upon combustion 0.0640 g. ash, 0.4452 g. carbonic acid and 0.1567 g. water.

The composition of the organic substance is calculated from these figures as follows:

	Calculated for $C_6H_{10}O_5$
Carbon .....	45.23% 44.44%
Hydrogen .....	6.54% 6.23%
Oxygen .....	48.23% 49.33%

An experiment to invert the solution was made. Three hundred (300) cc. were diluted to 800 cc., HCl was then added until 2 per cent was present and the solution heated for one hour. A precipitate was formed, which was washed, and which upon drying turned red and almost completely soluble in alcohol and glacial acetic acid. The weight was about 1 g. The elementary analysis gave the following result.

0.3190 g. lost 0.010 g. water over phosphoric acid anhydride, burnt without ash to 0.7511 g. carbonic acid and 0.1608 g. water.

From this the composition is calculated:

Carbon .....	66.28%
Hydrogen .....	5.83%
Oxygen .....	27.89%

This is consequently a rosin-like substance, very nearly coinciding with the organic part in the calcium lignosulphonate<sup>1</sup>. Possibly its presence is the cause of the high carbon value in the above mentioned "gum."

The reducing action towards Fehling's solution was determined before and after inversion.

I. Twenty-five (25) cc. of the solution was diluted to 100 cc.; 25 cc. of this solution,=0.425 g. dry substance, reduced 10.27 cc. copper solution, corresponding to 0.0953 g. or 22 per cent xylose.

II. Twenty-five (25) cc. of the original solution and 13.7 cc. (3N) hydrochloric acid were diluted to 100cc. (HCl= $\frac{1}{2}$  per cent) and were inverted for an hour in a sealed tube in a water oven. Ten (10) cc. of the solution so obtained,=0.170 g. dry substance, reduced 8.29 cc. copper solution, corresponding to 0.077 g. or 45 per cent xylose.

III. Fifty (50) cc. solution and 33.3 cc. 12 per cent hydrochloric acid were diluted to 200 cc. (HCl=2 per cent) and inverted as above. Ten (10) cc. of the solution so obtained,=0.170 g. substance, reduced 12.07 cc. copper solution, corresponding to 0.1121 g. or 66 per cent xylose.

<sup>1</sup>See Part I.

Some of the sugars in the extract were identified.

Pentoses.

I. Ten (10) cc. solution,=0.68 g. were distilled with 12 per cent hydrochloric acid in a bath of Rose's metal at 145 to 150°C. according to the method of Flint & Tollens<sup>2</sup>. The pentoses are in this manner transformed to furfural, which distils over. In the prescribed manner the phenylhydrazone corresponding to furfural was prepared. We obtained 0.172 g., which corresponds to 0.1695 g. xylose or 24.9 per cent of the dry substance.

II. Another portion of ten (10) cc. was distilled as before, but the furfural transformed to phloroglucide. 0.147 g. were obtained, corresponding to 0.1695 g. or 24.9 per cent xylose.

Since the dry substance is 10 per cent of the wood, the extracted quantity of xylose is 2.49 per cent of the wood.

Mannose:

Fifty (50) cc. of the original solution were diluted to 200 cc. solution, containing 2 per cent hydrochloric acid. The solution was inverted for one hour at 100°C. 50 cc. of the solution so obtained was neutralized with sodium carbonate and phenylhydrazine and acetic acid added. Upon cooling with running water a somewhat flocculent precipitate was obtained; which upon drying weighed 0.0264 g. If 0.050 g. remaining in the solution is added to this figure we obtain 0.0764 g. hydrazone corresponding to 0.0509 g. mannose, which is 6 per cent of 0.85 g. substance or 0.67 per cent of the wood.

Galactose: Twenty (20) cc. of the solution were concentrated on a waterbath to 8 cc. To this were added 60 cc. 20 per cent nitric acid and then the solution evaporated to  $\frac{1}{3}$  volume. A considerable liberation of carbon dioxide could be observed. Since no crystallization could be noticed after 24 hours 0.500 g. mucic acid was stirred into the solution. After some days the solids were taken on a filter. After drying it weighed 0.517 g., consequently galactose cannot be present in more than traces.

Other sugars. The solution, in which the mannose determination was made, contained 1.7 g. in 100 cc. solution. By polarization in sodium light, 2 dm. tube at 21°C., a rotation of  $+1.12^\circ$  was observed. From this  $(\alpha)_D = +33^\circ$  is calculated. This points to the fact, that the remaining substance is strongly dextrorotary, possibly dextrose. Unfortunately enough the investigation of this compound was not satisfactorily made. It can therefore only be said that 6 to 7 per cent carbohydrates have been extracted from the wood, the structure of which have not been determined, but which probably consist of glucose, since the fermentation of the waste liquor teaches that about such a percentage carbohydrates on the weight of the wood is transformed to alcohol.

#### Investigation of the Alcohol Extract

The light brown rosin obtained by vacuo evaporation was subjected to a series of extractions with petroleum ether and ethyl ether in order to free it from resin acids, oils and fat.

The petroleum ether extraction was made in a Soxhlet apparatus for 12 hours. Upon evaporation about 2 g. of a brown oil was obtained, in which small crystalline grains were formed when it was kept.

The extraction with ethyl ether was made in exactly the same manner. 0.5 g. of a light brown, viscous substance was extracted.

In an experiment in the subsequent extraction with chloroform the mass agglomerated to a lump that floated on the surface of the chloroform. It was therefore first finely ground and shaken in the cold with portions of 300 cc. chloroform for 10 to 12 hours. The extracts yielded small quantities of a thick brown oil. From 5 extractions a rosin was finally obtained, which was completely dried at 40°C., dissolved in alcohol and evaporated again. In this manner a very light-brown powder was obtained, which was dried over phosphoric acid anhydride to the constant weight of 4 g.

A sample was taken for elementary analysis, giving the following result:

<sup>2</sup>Ber. d. Chem. Ges. 25, 2916.

0.2800 g. gave upon combustion 0.679 g. carbonic acid and 0.162 g. water. From this the composition is calculated:

Carbon .....	66.14%
Hydrogen .....	6.49%
Oxygen .....	27.37%

This consequently is the same substance which has occurred a couple of times before. It was easily dissolved in alcohol and in acetic acid. In the latter solvent determinations of the molecular weight were made.

I. 0.1864 g. in 18.51 g. glacial acetic acid gave a depression of the freezing point of 0.170 degrees. This gives the molecular weight 231.

II. Upon addition of 0.2 g. more of the substance the freezing point was depressed 0.175 degrees more; calculated molecular weight 236.

The residue from the chloroform extraction was dried in vacuo at 50°C. 9 g. of a very light colored powder were obtained, which was also easily soluble in alcohol and in glacial acetic acid. The analysis yielded:

0.2316 g. gave upon combustion 0.4696 g. carbonic acid and 0.1708 g. water, corresponding to the following composition:

Carbon .....	59.97%
Hydrogen .....	5.66%
Oxygen .....	24.37%

In the determination of the molecular weight in glacial acetic acid 0.4696 g. in 20.62 g. glacial acetic acid gave a depression of 0.245 degrees, giving a calculated molecular weight of 362.

The first substance shows a good coincidence with coniferyl alcohol  $C_{10}H_{12}O_2$ :

	Calculated	Found
Carbon .....	66.67%	66.14%
Hydrogen .....	6.66%	6.49%
Oxygen .....	26.67%	27.37%
Molecular weight .....	180	236

The analyzed compound has a considerably higher molecular weight than coniferyl alcohol, but the latter voluntarily transforms into a substance with fundamentally the same properties and molecular weight as the body in question here. The latter, like the coniferyl alcohol, produces a vanilla aroma when oxidized with chromic acid.

The second compound is probably essentially a dimeric form  $(C_{10}H_{12}O_2)_2$  of a substance with the composition of oxiconiferyl alcohol:

	Calculated	Found
Carbon .....	61.23%	59.97%
Hydrogen .....	6.12%	5.66%
Oxygen .....	32.65%	34.37%
Molecular weight .....	392	362

In reality we might assume that the two compounds contaminate each other, that the former largely consists of coniferyl alcohol, the latter of the dimeric form of the oxiconiferyl alcohol.

### Synopsis of the Results of the Investigations I and II

From these investigations we find

That hot water extracts about 12 per cent of the dry weight of the wood, 10 per cent wood gum and 2 per cent closely related to the true lignin,

That the gum from the spruce wood in contrast to the gum from the broad leaf trees is only sparingly soluble in alkali,

That the spruce wood gum contains as constitutional sugars xylose (25 per cent), mannose (6 per cent), traces of galactose. The largest part is probably glucose,

That one part of the lignin extracted by water consists of coniferyl alcohol, another probably of a dimeric form of oxiconiferyl alcohol or a similarly constructed compound.

That the lignin contrary to the common supposition does not exist in the wood combined with carbohydrates,

That the lignin is not homogeneous, but contains at least two main

constituents, the difference of which is probably only that the one has its hydroxyl partly substituted by methoxyl.

That the main part of the lignin has a very high molecular weight,

That the lignin for 40 carbon atoms can bind 2 mol.  $SO_2$  strongly, a third looser and a fourth extremely loosely,

That lignin already combined to 2 mol.  $SO_2$  can add 2 atoms iodine more, and consequently that it has three ethylene bonds,

That calcium lignosulphonate, precipitated with calcium chloride from the concentrated waste liquor, has a composition closest corresponding to  $C_{40}H_{44}O_{17}S_2Ca$  and that the lignin corresponding to this consequently has the composition  $C_{40}H_{42}O_{15}$ ,

That lignin fundamentally is a condensation product of coniferyl and oxiconiferyl alcohols, in which the side groups probably have the same position as in gallic acid, i. e., 1, 3, 4, and 5,

That the lignosulphonic acid prepared in the described manner does not give any lignin reactions.

### Postscript

After completion of the foregoing paper, which is published in "Arkiv f. Kemi," vol. 2, especially the question of the lignin reactions and their relation to the lignin has been the object of investigations by the botanical physiologists; they have made investigations to ascertain whether it is the lignin as such, or decomposition products of the lignin or a small contamination in the lignin that causes those reactions.

According to Czapek<sup>3</sup> one can by cooking finely divided wood with stannous chloride solution obtain a very small quantity of a substance in solution which gives a very intense reaction with phloroglucin and also all the other, or a large part of the other lignin reactions. He names the substance hadromal.

The work of Czapek was in 1904 the subject of an elaborate experimental critical examination, conducted at the Wiesner laboratory by V. Grafe<sup>4</sup>. From the investigations of this author we have learned that hadromal may also be prepared by heating of the wood with water to 180°C. and that it fundamentally is a mixture of vanillin, pyrocatechin and 2,5-methyl furfural. By heating of sulphite waste liquor with lime to 180°C. vanillin could even be prepared in pure form.

It is easy to see that the results of Grafe do not disagree with mine.

It has been known for a long time that pyrocatechin results when cellulose is heated with water to a high temperature. Methyl furfural must also be a decomposition product from the lignin or from the cellulose. This compound must upon suitable oxidation yield acetic acid, but the spruce wood lignin does not produce any acetic acid by oxidation. Consequently the methyl furfural cannot exist, at least, not ready formed, in the lignin. It is most probable that the methyl furfural is a decomposition product of the carbohydrates in the wood. Vanillin is evidently a decomposition product of the coniferyl alcohol which I have shown to exist in the wood.

I cannot, however, agree with the conception of Grafe that the wood substance (lignin) should mainly consist of vanillin, methyl furfural, pyrocatechin and coniferin in ether-like compounds, which by the action of acids or alkalis should be hydrolyzed. The high molecular weight which I have shown the lignin to possess, even when it occurs combined to sulphurous acid, and consequently has been subjected to hydrolysis, in the sulphite digestion doubtless shows that the main part of the lignin like the cellulose is closely related to the colloidal substances and that the lignin therefore neither is chemically combined with, nor can be conceived as a transformation product of cellulose.

I therefore completely agree with the conception of H. Wislicenus<sup>5</sup> that the real, high-molecular lignin has, like the cellulose, been precipitated from the cambial sap by an "absorption synthesis" (as he

<sup>3</sup>Zeitschrift f. physiologische Chemie 27, S. 141 (1899).

<sup>4</sup>Sitzungsber. d. Wien, Akad. d. Wiss. Abt. I, 113, S. 253 (1904).

calls it), that consequently this lignin occurs combined neither with sugar, nor with cellulose, which, at least so far as the other non-cellulose carbohydrates in the wood are concerned, has been directly demonstrated by me.

But he has probably gone entirely too far in his conception of these compounds, deposited on the cellulose by "Gelhaubildung aus den kolloiden Prokambialstoffen des Kambialsaftes," as a chaos of substances.

#### Another Condition

If the entire infinite vegetable world is looked upon as a whole, this is undoubtedly true, but there is another condition when only one certain species is in question. Specially as to the spruce, the results I have reached do not at all point to such a condition, but it seems to be about the same as pertains to cellulose. The simple constituents of both are few.

We must also observe that the conception of Wislicenus regarding the vast variety of compounds constituting the lignin evidently cannot be of any practical use, but that my conception on account of its simplicity makes it possible to calculate the fundamental quantitative figures for the sulphite process and also gives an image of the cooking process. It might therefore for the present fill all reasonable demands that can be made from a theory. It is probable, however, that it does not contain the whole truth. Strictly taken, no theory does. Natural science as a whole is an evolution and my results may be developed or corrected by new facts.

Dr. Klein<sup>2</sup> accuses me of having constructed a formula for cellulose before "die Abbauprodukte der Cellulose genügend charakterisiert sind" and before we have succeeded to synthesize cellulose. I have to say that I never constructed a formula for cellulose and as to the spruce wood lignin I have not constructed a detailed one.

The formula I have given is, of course, merely intended to give a synopsis of the facts rather than to give a certain formula.

That the lignin has some connection with the coniferyl alcohol may, however, be derived from the following facts: (1) that a polymeric coniferyl alcohol has been extracted directly from the wood, (2) that vanillin has been prepared from the wood, (3) that the phenols in the tar from coniferous trees all are related to that compound, (4) that the composition does not disagree with the idea, (5) that the number of methoxyl groups also coincides, (6) that the behavior towards sulphurous acid is completely analogous, (7) that the behavior towards mineral acids also is analogous, (8) that the compounds belonging to the cinnamic acid and protocatechuic family are widely distributed in the vegetable world.

About 4 years ago Cross, Bevan and Briggs<sup>3</sup> communicated some interesting observations regarding the possibility of the wood to combine with phloroglucinol. They have found that the main reaction is of quantitative nature and independent of the color reaction. The maximum quantity of phloroglucinol absorbed calculated in per cent of the wood is given by the authors as 6.67. They also believe that this is a chemical reaction.

#### How These Facts Agree

It was now very interesting to find out how these facts agree with my conceptions here related regarding the structure of the lignin. Since sulphite cellulose absorbed 0.75 per cent phloroglucinol and the wood contains about 50 per cent cellulose, the lignin absorbs about 6.3 per cent phloroglucinol. If we assume 28 per cent high molecular weight lignin in the wood, 100 parts of the lignin combine with 22.5 parts phloroglucinol; theoretically 100 parts should combine with 18.1 parts of phloroglucinol. Consequently we have also here a good coincidence, especially if, which is probable, the remaining 22 per cent of the wood also consume some phloroglucinol.

<sup>2</sup>Zeitschrift f. Chem. d. Kolloide Bd. VI, S. 1 (1910).

<sup>3</sup>Verein d. Zellstoff- und Papier-Chemiker Hauptv., 1909.

<sup>4</sup>Bed. Ber. XI., S. 3119 (1907).

#### Sulphur, Pyrites, in 1920 and 1921

The quantity of sulphur produced in 1920—1,255,249 long tons—was the largest produced in any year except 1918, when the output reached 1,353,525 long tons, according to the United States Geological Survey, Department of the Interior. The shipments in 1920, amounting to 1,517,625 long tons, exceeded those of any other year. Two mines in Texas and one each in Louisiana and Nevada furnished all the sulphur produced in this country in 1920. The value of the shipments in 1920 is estimated at \$30,000,000. The sulphur produced in 1921 amounted to 1,879,150 long tons, which is about one-third more than was produced in 1920. On the other hand, the shipments in 1921 were nearly one-third less than in 1920, amounting to only 954,344 long tons, as against 1,517,625 long tons. It is therefore evident that large stocks of sulphur are now on hand. Two mines in Texas and one each in Colorado, Louisiana, Nevada, and Utah contributed to the output in 1921. In 1920 and 1921, as in former years, more than 99½ per cent of the sulphur produced in this country came from mines in Texas and Louisiana.

The exports of sulphur in 1920 amounted to 477,450 long tons, valued at \$8,994,350, and in 1921 to 285,762 long tons, valued at \$4,524,788, according to records of the Bureau of Foreign and Domestic Commerce of the Department of Commerce. It is therefore apparent that the export of sulphur decreased about two-fifths in 1921 and that there was a drop in value of \$3 a ton from 1920 to 1921. The imports of sulphur dropped from 136 long tons in 1920 to 50 long tons in 1921, and the value decreased about \$7.50 per long ton.

The production of pyrites in 1920, as compiled from figures collected by the United States Geological Survey, was 310,777 long tons, valued at approximately \$1,597,000. This quantity was almost twice that produced in 1921—157,118 long tons—estimated to be worth about \$700,000. In 1920 California led in production, contributing 128,114 long tons, which was only a few hundred tons less than in 1919, and 98,252 long tons in 1921. The average value per ton for the total pyrites produced in the United States was somewhat less in 1921 than in 1920, being about \$5 for 1920 and \$4.45 for 1921.

The reports received from producers indicate that the market for pyrites has been very poor for the last two years, because the manufacturers of sulphuric acid, who have heretofore been the principal purchasers of pyrites, are now using more native sulphur, which is not only cheaper but more easily handled. The slack market is also reflected in the imports of pyrites (reported by the Bureau of Foreign and Domestic Commerce), which fell off about one-third in 1921 from those in 1920. The imports in 1920 amounted to 332,606 long tons, valued at \$1,660,832. About 200,000 long tons came from Spain, 100,000 long tons from Canada, and small quantities from France, Cuba, Chile, and Hongkong. The imports in 1921 amounted to 216,229 long tons, valued at \$818,852. The price per ton of the imported ore was about \$1 less in 1921 than in 1920.

#### Tidewater Mills Makes Further Contribution

The Tidewater Paper Mills Company, one of the original contributors to the Vocational Education Fund, has recently sent the committee a check for \$100, as a further contribution to aid in the completion of the text books. This was done after the company officials had gone over the list of contributors to the fund to date published this spring in the PAPER TRADE JOURNAL and decided that a further contribution on their part would be entirely in keeping with the way in which the industry is backing the undertaking.

In visiting a large mill recently it was noticed that use is being made of the suggestion in the March 30 issue of the PAPER TRADE JOURNAL by displaying the poster "Stop leaks" in the form of large blue prints. It shows that the Technical Section is read.

## NOTES ON BEATING OF PAPER PULP\*

By W. ALISON, OF A. PIRIE & SONS, LTD.

*In the British Technical Section they appear to be approaching an understanding as to the basis on which to investigate and discuss Beating. Perhaps it would be advisable to drop the use of the word on account of its adventitious meanings and adopt a colorless phrase such as "mechanical treatment of fiber in preparation for the paper machine." The next step might be to take some particular phase of the problem in which the result is definitely and clearly marked as in stock prepared for a well established grade, such as imitation parchment—in this country from sulphite pulp—a mechanical separation of the disintegrated fiber material along somewhat the same lines as the pith cells and fiber as were separated in the investigation of corn stalks for paper might be done with advantage. It is essentially a research for a well equipped paper mill laboratory or possibly for the Bureau of Standards.*

It has always struck me that in most technical papers the writers are too vague and not exact enough. Perhaps this proceeds from the fact that paper-making can hardly be called an exact "science"—in any case, as an example of what I mean, I have frequently seen it stated that paper can be sized with silicate of soda. Now in my experience, as I understand the term, silicate of soda has no sizing effect. It is certainly used in some mills and may fill up the paper and make it hard enough to resist printers' ink, but it does not size the paper. If the writer had stated the purpose for which the paper sized or hardened with silicate of soda was used, it might have saved me many a futile experiment.

In the same way, if writers on the beating of paper pulp headed their papers "Beating of News Print," "Beating of Kraft Paper," "Beating of Ledgers," "Beating of Blottings," etc., etc., much of the confusion and apparent discrepancy between different writers would be eliminated, and the first step towards making paper-making an "exact science" be achieved.

Following up this idea, I would say that the following remarks apply specially to preparing pulps for high-class writings and ledger papers made chiefly from rag fiber. First, I would like to ask: "Is beating really understood?" or rather, "Are all the operations carried on in the beater fully appreciated?" I think not, as otherwise we would not have had many of the so-called improved beaters in recent years placed on the market. Almost all writers and inventors give prominence to the roll and number of cuts that it can give per minute, forgetting that during the process of beating the roll will probably be half the time clear of the bed plate altogether in order to give the time factor necessary for hydration. This seems to unduly appreciate the cutting action, and is just as far removed from the true function of the beater as the inventor of the Laffin engine was when he eliminated the cutting action altogether, and depended solely on a series of spikes or pickers on a roll whipping and snapping the pulp. Patents were taken out for this engine in 1874, but I am not aware that any paper was ever beaten by it. I should imagine that although it were possible to break in rags by this process, it would in practice take much too long when no actual cutting action was employed.

### Saving Power

Now again, many inventors have proceeded along the lines of saving power. This in any factory is very necessary, but we must be sure of getting results, and I agree with Mr. Nuttall that the difference in power absorbed by any of the better-known beaters is very slight. We must circulate the pulp, and whether this is done by a roll or by a pump does not seem to make much difference as far as power is concerned, so we may dismiss the question of power from our minds, and pass on to consider what

is beating, and what is the best form of engine for performing the operation. In considering this, it is necessary to keep in mind what paper is. Speaking generally, it is a mass of fiber felted together. Now, are these fibers all one length or is it desirable that they should be? The arguments used in favor of many types of engine are based on the theory that for a good sheet all fibres should be one length. In my experience, this can only produce a thin-looking characterless sheet, and forces one to the conclusion that a sheet of paper should be built up by interlacing long fibers and the spaces filled by fine short fibers, thereby closing the sheet; or in other words, fine fibers reinforced with long. This character of stuff is automatically produced by the Hollander. The stuff next to the midfeather travels much faster than the stuff at the outside. It is true that the outside stuff does not always remain at the outside, but the circulation as between the outside and inside is not sufficient to produce absolute uniformity. The Hollander, therefore, produces the best kind of stuff, *viz.*, long fibers from the outside to make the skeleton and fine fibres from the inside to form the body of the paper. This is very noticeable in papers such as loans and banks, where we have the fine fibers not only cut transversely, but longitudinally as well, until they become what is known as fibrillae; fragments of fibers in many cases. To get cellulose into the proper condition to make hard-sized writings and similar papers, fibers have not only to be cut, they have to be bruised, they have to be beaten, they have to be milled, and when this is done in the presence of water, we get pulp in a condition to make a sheet of this class of paper. The original stamps used to beat pulp answered all these conditions except that they had no cutting action. Here they failed. The only pulp they could produce would be very wet and for many grades of paper quite unsuited. After the stamps we find the Hollander introduced. It is unnecessary to describe it—you all know its form. In this engine the stuff is not only cut, it is beaten, rubbed and milled, thereby hydrating it—an operation I will speak of later on. The beating action I hold is quite as important as the cutting, and, in fact, for esparto and wood pulp, is all-important, as in their case very little cutting action is required. This, then, explains why almost all the attempts to replace the Hollander with other forms of beater have more or less failed. They do not subject the fibers to the proper milling or rubbing action.

In the Hollander not only are fibers rubbed under the roll, they are beaten with the bars and they rub one against the other all the way round the tub, owing to the inner circle traveling faster than the outer. It is this prolonged rubbing of the fibers that hydrates them and makes them flexible and easily interwoven on the machine wire, and gives Hollander stuff its peculiar characteristics. Unless stuff is properly hydrated it is hard and stubborn and will not interlace properly.

Many of the beaters tried during the last twenty years depend for circulation on pumps, and in these cases the stuff usually travels forward in a solid mass. This gives violent rubbing at intervals when in the circulating pump, and beating with the roll, but it misses the prolonged rubbing of one fiber against another. They can be made to produce very wet stuff on the machine, but it is well known that prolonged gentle treatment produces quite different results from short violent treatment. Although the stuff is very wet, it has not the same flexibility as stuff prepared with prolonged rubbing, such as is got in the Hollander, and is inclined to stand on end, so to speak, on the machine wire.

### Rubbing Action

The theory of the necessity of the rubbing action is confirmed

\*Paper and discussion before the Aberdeen Division of the Technical Section of the Paper Makers Association of Great Britain and Ireland.

when we think of the treatment given to stuff required to make blotting paper. Here we wish absence of hydration and very fast stuff; therefore, we practically float the fiber in water in very light engines so that no, or at the most very little, rubbing action takes place. Now the cuts in the case of blotting are probably about the same as in the case of ledger or writing papers as the stuff flows around the engine at a very rapid rate when compared with the slow movement of heavily packed engines. It, therefore, follows that the point to be emphasized is not only the roll and cutting action, but the proper vat in which to hydrate and prepare the stuff. I do not remember ever having seen this point being emphasized, or given the importance it deserves, by paper-making writers.

The best weight of roll for rag papers is a very interesting point, and it would be instructive if the experience of various mills could be gathered together. Starting from the very light old wooden rolls, what is the heaviest roll that can be used, and what is the practical difficulty with the very heavy rolls? The light wooden rolls must have been excellent for long wet stuff such as is required for banks and ledgers. It was impossible to cut the fibers, even although the roll was full weight down, they could only draw out the fibers, but they must have been very imperfect when fast stuff with only a moderate degree of hydration was wanted, such as for fine close writing papers.

Then, with very heavy rolls the reverse was the case. I remember some experiments being tried at Stoneywood with rolls 5 tons in weight, 4 feet in diameter, and 5 feet 6 inches on face. Even with very careful counterbalancing weights it was found impossible to *always* draw out the stuff—the cutting action was too great with the natural result that the stuff was diced—that is, cut into squares with the warp and woof not drawn out as half-stuff should be.

Mr. Nuttall gives the weight for rolls for rag engines at two tons—this is probably the heaviest roll that can be satisfactorily worked. A common weight for breaker rolls is about 34 cwts., measuring 38 ins. diameter, 38 ins. on face, with a surface speed of about 1,500 ft. Beater rolls are usually rather smaller with a faster surface speed. This gives a roll that can be used to produce either fast or wet stuff according to the method of working, and seems to have been arrived at by experience, as most rag mills work rolls about this weight. They are suitable for all-round work. No doubt, if the trade in, for example, loan papers were sufficient, one would put down quite different beating plant from that which would be put down to produce fine writing papers, even although the materials used were pretty much the same, but as the total trade which one firm can usually get in such papers is not sufficient to fill a machine, they are usually made with the same plant as ledgers and writings. To produce wet stuff the lighter the roll the better; to produce fine stuff the heavier the better, so long as it does not dice the rags. This, I think, will be admitted to be a truism.

#### Hydrating of the Pulp

Earlier in this paper I spoke of the hydrating of the pulp and the mechanical means which produced the reaction—that is, rubbing and beating. We know how it is produced—heavily filled engines so that the rubbing action of the fibers one against the other is greatest. Why does a beaterman of esparto writings always have his engine full up and frequently more than full? He knows that this hydrates the pulp and he gets a firmer sheet. The heavily-filled engine produces more pressure against the fibers and gives the desired result.

Cotton cellulose in its natural state is very absorbent and difficult, if not practically impossible to size with rosin in the beater. If we change this natural state of cotton fiber to a hydrated state we find that it is non-absorbent and much more easily sized either in the engine or in the gelatine trough. What change has taken place? Is it a chemical change produced by

physical means, or is it simply a physical change? I know many chemists have tried to solve the problem; personally I think the probabilities lie with the physical change theory. I remember years ago putting through a series of experiments to try and prove that an extra molecule of water had been beaten into the pulp, but I could not get any conclusive proof. I know that if you dry down the wet stuff and expell all the water it is found to be just cellulose, but it remains hydrated stuff; that is when soaked in water again it becomes what is known as wet stuff. From this I would conclude that it is simply a physical change that has taken place. The hard fibers of cellulose, and in the case of esparto even spike-like fibers, have become flexible, pliable and non-absorbent.

It would, therefore, appear to be impossible to produce such a physical change by chemical means. One could imagine that it might be possible by chemical means to fix on another molecule of water to cellulose, but it is almost inconceivable that this would convert a repellent fiber into a pliable one. This can only be done by physical means operating over a period of time.

It is important to bear this fact in mind when designing beating plant, and here again I would reiterate that the modern engineer has not fully appreciated what beating is. We must have an engine to not only cut up the fiber, but mill and hydrate it at the same time. So far the only engine that answers all the requirements is the Hollander, and it looks as if it would remain "King of Beaters."

Take as an example the quality "Fines." Fines from different parts of the country vary in a marked degree—country fines are quite different from city fines, West of England from East of England, Glasgow from London. Then, again, foreign fines—Dutch, French, German, Italian, each have their own characteristics, and the successful beater man has to vary his treatment according to quality. The first thing he does when he gets his beater filled up is to pass the pulp through his hand. He then judges how long it will require the roll and at what particular pressure for the kind of paper he is making and beats accordingly. If he cannot do this, then he is not a beaterman—he is only a "filler in."

#### Remarks by Mr. Abel

J. G. Abel, of A. Pirie & Sons, Ltd., said that from his knowledge of the practical side of beating he was of the opinion that the word "hydration" did not fully cover the beating-process, and some other expression should be used to express what really takes place in the beating-engine when we were in a position to state the latter in terms more precise and exact.

#### Remarks by Mr. Strachan

Mr. J. Strachan, The Donside Paper Co., Ltd., said that Mr. Alison's paper was eminently practical and suggestive. He had seldom listened to a paper with which he was more in substantial agreement, both from the point of view of practice and theory. With regard to weight of roll this had increased with demand for production, and he was afraid that many rag papers made to-day depended a good deal on gelatine for strength and handle. With reference to the theory of beating he was afraid that it was rather an abstruse subject to discuss with practical men. He had studied the subject closely for over twenty years with a view to placing his observations and experiments on record, but the time was not quite ripe for that and the occasion perhaps unsuitable. The general conclusion that he had arrived at was that beating was a purely physical phenomena accompanied by minor and incidental chemical changes. He did not attempt to deny that various chemicals could be used to facilitate hydration. In some cases the action was to degrade the cellulose, in others the action of the chemicals was physical. Cellulose in its natural condition was an elastic gel, more or less highly hydrated. During the isolation of cellulose either by natural or artificial processes it became partially dehydrated and approached the condition of a non-elastic gel, strictly



comparable in many of its properties with such inorganic substances as silica and alumina. It had still the property of absorbing water by capillarity and endosmosis, but its molecular absorption was strictly limited by its history and condition. During beating there was a partial return or reversal to the hydrated elastic gel state by molecular adsorption or imbibition of water. The characteristics of imbibition were easily observable in the beating operation. First there was the volume contraction of wet stock in the beater with which as practical men they were all familiar. The temperature change was not so easily observed because of heat generated by friction, but they were familiar with the converse, *viz.*, the dehydration of wet stock by increased temperature of the stock. Elastic gels showed increased imbibition of water under pressure, and in the pressure applied by the beater-roll we found the factor which dominated hydration. In short, unbeaten cellulose might be regarded as comparable with an elastic gel like gelatine which hardened by alcohol or formation was incapable of imbibition without some radical change of its molecular arrangements. In the case of cellulose this was brought about by mechanical pressure and friction. Why this should be the case required further investigation into the molecular arrangement of cellulose in fibers. He did not agree, in reference to this subject, with the views recently expressed by English and German physicists, either that the cellulose of fibers was an amorphous colloid strained during dehydration or that it had a definite crystalline structure. Nor could he grasp the idea recently suggested that the whole fiber was possibly the molecule. In his opinion, from long-continued microscopical observations, there was a more rational view of the optical and physical properties of cellulose. He regarded the fiber as composed of the so-called "fibrillæ" plicated or woven into a definite structure, and that these fibrillæ were themselves molecules or chains of molecules. He considered that the opening up and separation of these molecule-chains by mechanical friction and pressure in beating was a sufficient and feasible explanation of the reversal to the elastic gel state and the hydration by imbibition. It should be noted that there were two actions here, both physical, and a common factor. No chemist had yet shown that cellulose formed a chemical compound with water during hydration for a simple reason—it was quite impossible to do so. The vapor pressure curves of the cellulose-water system during both adsorption and hydration indicated only two phases, which proved conclusively that there was no hydrate of a definite composition. It was useless to argue more on this point. The point of practical interest was whether by the use of chemicals—which chemically by degrading the cellulose structures would render the fiber more easily opened up, or which physically by the well-known process of increased rate of imbibition would increase the rate of hydration—a practical commercial process could be devised to render beating a more economical process.

### Laurentide Starts New Generator

[FROM OUR REGULAR CORRESPONDENT]

GRAND MERE, QUE., May 8, 1922.—The electric steam generator of the "Kaelin System," recently installed at the Laurentide Paper Company's plant by the Electric Furnace Construction Company of Philadelphia, commenced operating April 21. Although only designed for 25,000 kilowatts, this boiler is averaging 34,000 kilowatts and is producing 100,000 pounds of steam per hour at 125-pound pressure.

This is the largest electric steam boiler ever built and it was put into operation without the slightest hitch. The space occupied by this boiler is very small compared with the existing fuel-fired boilers that it is replacing. The saving in coal alone amounts to 150 tons per day.

The boiler was constructed and installed by the Dominion Engineering Works, Montreal.

### English for Paper Makers

"English of Paper Making" is the title of an unusual publication which has been issued by the Industrial Service Department of the Associated Industries of Massachusetts of Boston. The work has been compiled by Charles H. Paull and is intended to be used as a textbook for adult English classes in the mastering of the technical vocabulary of the paper mill.

In the foreword the author explains that the series of lessons has a two-fold purpose: "To meet the need for special lessons showing the processes in making paper, and giving enough technical vocabulary so that the pupils may understand instructions and safety precautions; and to teach each worker enough about every step so that he will have a thorough understanding of the relation of his job to the work of the plant as a whole."

The method of presenting this information is indeed striking. Supplanting the "primer" method used by children in the first grade of grammar school, where we find, "John has a red apple. Will John eat the apple? No, he will give it to Mary," we find this type of conversation clothed in technical phraseology in the new book: "John and Henry work in a fine mill. They put sulphite pulp into the beater," etc.

Particular emphasis is placed upon the assimilation of verbs by the student, each one being set to one side of the sentence in the following manner:

Cuts 10. Mary cuts off the buttons.

is 11. She is careful.

does not cut 12. She does not cut her fingers.

Besides this, illustrations of each process in paper manufacture occur at the tops of the pages, and all references to the danger of injury are made in red ink.

This work is, undoubtedly, an advanced step in the education of foreign workmen not versed in the rudiments of the English language. Every step is outlined with detailed precision, and while much may appear unnecessary, the effort is apparently to simplify technical processes and terms to such an extent that a child could understand them.

### Output of Pulpstones Decreases

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., May 10, 1922.—The output of grindstones and pulpstones in the United States in 1921 amounted to 26,340 tons, valued at \$1,227,322, according to figures reported by the producers to the United States Geological Survey, Department of the Interior. This was a decrease from the output in 1920 of over 50 per cent in quantity and of 28 per cent in value.

The grindstones produced amounted to 16,310 short tons, valued at \$477,359, a decrease of 63 per cent in quantity and 61 per cent in value.

The pulpstones produced amounted to 10,030 short tons (2,940 pieces) valued at \$750,063, an increase of 16 per cent in quantity and 63 per cent in value. The demand at paper mills, which were very active late in 1920 and early in 1921 and which during and after the war could not renew their supply of English stone, increased the market for domestic pulpstones. If the depression that has followed this activity continues there will probably be a considerable decrease in the output of pulpstones in 1922.

### Summer Meeting of the Superintendents

While it was not possible for the Technical Association of the Pulp and Paper Industry to arrange for a meeting so soon after its annual meeting a very cordial invitation to the members to attend was extended by President J. H. O'Connell at the convention.

A number have expressed the intention to go to Kalamazoo for the meeting. In order that all who go may be accredited delegates they are requested to advise the secretary 18 E. 41st street, New York, who will be glad to make the necessary arrangements.

## CURRENT PAPER TRADE LITERATURE

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts of Literature of the Technical Association of the Pulp and Paper Industry

**Bamboo Pulping Apparatus.**—U. S. patent No. 1,398,861, James L. Jardine, Nov. 29, 1921. *Paper*, xxix, No. 19, 11-12, (Jan. 11, 1922). The apparatus comprises essentially means for feeding the stems of bamboo or the like endwise through preferably a brushing device wherein adherent dirt and other readily detachable substances are removed from the exterior of the stems, to one or more pairs of cracking rollers so set, either horizontally or more or less vertically, that the stems are cracked longitudinally and flattened. The cracked and flattened stems pass to a plow device comprising a blade part adapted to separate the stems, and a share part adapted to lay the separated portions side by side on a conveyor, which delivers them to the first of a series of pairs of crushing and disintegrating rolls, each pair consisting of one plain and one circumferentially and comparatively finely grooved or corrugated roll. From the last pair of these rolls the crushed and disintegrated stems are delivered over a fixed knife with which co-acts a rotary blade driven at such a speed relatively to the surface speed of the rolls that the stem tissue is divided into portions of convenient length.—A. P.-C.

**Papyrus and Papyrus Paper.**—J. Micol de Portemont.—*Papier*, xxiv, 484-487 (Nov., 1921).—A general review of previously published work on the paper making qualities of papyrus.—A. P.-C.

**The Manufacture of Esparto Pulp.**—*Papeterie*, xliii, 1113-1118 (Dec. 25, 1921); xlv, 18-22, 66-74 (Jan. 10 and 25, 1922).—A description of esparto, its habitat, and transformation into paper pulp, taken from a manuscript dated Tunis, Aug. 13, 1899.—A. P.-C.

**Esparto Pulp and Paper.**—E. Arnould.—*Papier*, xxiv, 531-533 (Dec., 1921). A discussion of the qualities of esparto pulp and esparto papers.—A. P.-C.

**Grasses as Sources of Paper Fibers.**—*Paper*, xxix, No. 15, 20-23 (Dec. 14, 1921), No. 17, 9 (Dec. 28, 1921).—An outline of the results obtained at the Imperial Institute on the paper making possibilities of the following giant grasses from India and Africa: baib, ulla-grass, nal, *Saccharum* spp., munj, pampas grass, Spanish reed, *Andropogon intermedius* (R. Brown), spear grass, moya grass, dab, tambooki grass, Johnson grass, *Andropogon Tristachya Rehmanni* (Hackel), *Pennisetum purpureum* (Schumacher), lalang grass, porcupine grass, prairie grass, para grass, camelote.—A. P.-C.

**The Penetrability of Filter Paper.**—R. C. Griffin and H. C. Parish, Arthur D. Little, Inc., Cambridge, Mass. *J. Ind. Eng. Chem.*, xiv, 199-200 (March 1, 1922). The common methods of testing the penetrability of filter paper are discussed, and a new penetrability tester is described. It consists essentially of a lead cup to which the water is fed at the bottom under a constant head. Three-quarters of an inch below the overflow there is a screen, under which is placed a circle of the paper to be tested. To make a test, the paper is put in position, the upper portion of the apparatus placed on top, the water slowly turned on until it overflows from the cup, and a 100-cc. volumetric flask is placed under the overflow spout. The penetrability figure is the number of seconds required for 100 cc. of distilled water at 20 degrees C. to pass through a circle of the filter paper 2 inches in diameter under a constant 9-inch head. Attention is called to the effect of temperature (see Rigaud-Monin, *Papeterie*, xliii, 818-821, Sept. 25, 1920; *Pulp and Paper*, xix, 482, May 5, 1921). Time has a considerable effect on the speed of filtration, even when nothing but distilled water

passes through the paper. The penetrability figures increasing manifold in a relatively short time (25 secs. to 1,000 secs. in two hours for a fast paper, and 175 to 775 in one hour for a slow paper). Comparative penetrability figures are given for five representative grades of quantitative papers.—A. P.-C.

**Denoe Sizing Tester.** U. S. patent No. 1,404,586, Joseph Denoe, Jan. 24, 1922; Fr. patent No. 526,901. The patent covers an apparatus in which the paper to be tested is secured to a board against which a series of drawing pens (8) of gradually increasing point widths are pressed by means of an adjustable weight on a lever arm. The board with the paper travels under the pens, and the latter are automatically raised when the board reaches the end of its course. The sizing is judged by noting the width of the first line showing through the paper. The main advantages of the apparatus are uniformity in the relative speed between the pens and paper, in the pressure exerted by the pens on the paper, in the amount of ink deposited, and in the increase in the width of the strokes. The results of several tests are therefore comparable, provided an ink with known characteristics be used.—A. P.-C.

**Witham Flexibility Tester for Paper.**—Can. patent No. 214,457, Geo. S. Witham, Jr., Nov. 29, 1921.—The paper is suitably held between four pins and loosely held by a clamp which hangs from one end of a beam, the other end of which carries a suitable container. The beam carries a pointer which moves over a graduated scale. Water is allowed to flow into the container from a burette, thereby lowering one end of the beam and raising the end carrying the clamp, so that the paper is bent. The pointer indicates the amount of bending of the paper, and the force can be calculated from the amount of water which has been delivered by the burette.—A. P.-C.

**Influence of Moisture on the Testing of Paper.**—*Paper*, xxix, No. 14, 16-18 (Dec. 7, 1921); *Paper Trade J.*, lxxiii, No. 24, 47-48 (Dec. 12, 1921).—A discussion of the influence of the humidity of the surrounding atmosphere (and consequently of the moisture content of the paper) on paper tests. In laboratories such as the U. S. Forest Products Lab. or the German Prüfungsamt, all the mechanical tests are carried out in a constant temperature and constant humidity room. But this is not possible in most cases. It is then necessary to observe the humidity of the air and apply a suitable correction to the results obtained, to bring them to what would have been obtained under 65 per cent relative humidity.—A. P.-C.

**The Weighing of Papers and Cardboards.**—H. L'Homme and M. Argy.—*Papeterie*, xliii, 1010-1014 (Nov. 25, 1921).—The authors have succeeded, by subjecting ball bearings to a special treatment which they do not disclose, to use them in the manufacture of quadrant balances and obtain a satisfactory sensitivity. With a 3 kilo board balance a load of 0.1 g. causes an appreciable deflection; while more delicate balances have been constructed in which a load of 0.2 g. causes the indicator to move completely across the scale, the divisions being equal to 0.001 g. and each of them being over 1 mm. long.—A. P.-C.

**The Scott Tearing Strength Tester.**—*Paper*, xxix, No. 9, 26-27 (Nov. 2, 1921).—A description of the tester and of its mode of operation.—A. P.-C.

**Process of Dissolving Cellulose.**—U. S. patent No. 1,390,995, I. Kitsee, Sept. 20, 1921. *Paper*, xxix, No. 12, 12-13 (Nov. 23, 1921).—The process, which is applicable to all methods or processes of dissolving cellulose in which a metal, or its compounds, is required for the dissolving action, and more particu-

larly to the cuprammonium process, consists essentially in producing a rubbing action between the cellulosic material (cotton, paper, etc.) and a suitable metal (e. g., copper) in the presence of a suitable solvent (e. g., ammonia).—A. P.-C.

**Action of Formaldehyde in Cellulose.**—M. Samec and S. Ferjancic. *Koll. Chem. Beihefte*, xiv, 209-226 (1921); *Chem. Soc. Abs.*, cxxii, Pt. 1, 115 (Feb., 1922).—Purified sulphite cellulose has been heated under pressure with formaldehyde or formic acid at 143 degrees for various periods of time and the products have been compared with the original cellulose. It is shown that formaldehyde reacts with cellulose and its derivatives when they have been converted into the emulsoid condition. The product does not give any iodine coloration but after washing away the formaldehyde the color can be obtained after the product has been emulsified with sulphuric acid. The sulpholysis of cellulose in the presence of formaldehyde takes place differently from the action in its absence and leads to low molecular derivatives. The charring of cellulose derivatives by strong sulphuric acid is strongly retarded by formaldehyde, and in the same way the esterification of cellulose derivatives is also retarded. Formaldehyde has a similar action on cellulose derivatives. The experimental results are explained by the assumption that the formaldehyde unites to the cellulose with the breaking of oxygen rings and the formation of oxymethylene groups, and that in the cellulose molecule an internal anhydride formation follows with the hydroxyl group of a neighboring dextrose residue.—A. P.-C.

**Depolymerization of Ethylcellulose.**—Kurt Hess and Walter Wittelsbach. *Ber.*, liv (B), 3232-3241 (1921); *Chem. Soc. Abs.*, cxxii, Pt. 1, 116 (Feb., 1922).—It is shown that the products of acetolysis of ethylcellulose, after action varying in duration from 2 to 142 hours, have molecular weights in very dilute solution corresponding with those required for a tetraethylbiase anhydride. Depolymerization of ethyl cellulose to "cellulose" occurs, therefore, with much greater readiness than has been assumed previously.—A. P.-C.

**Wood Substitute from Sawdust and Paper Waste.**—Fr. patent No. 507,501, E. Borig and J. E. Garderes, June 24, 1920. *Chimie et Industrie*, vi, 800 (Dec., 1921).—A composition made up of about 33 per cent sawdust, 20 per cent paper waste, 22 per cent casein glue, 10 per cent chalk or limestone, and 15 per cent moisture. The proportions can be varied according to the properties desired, e. g., the paper waste decreased and the casein glue increased to give it greater elasticity. The ingredients are triturated so as to give a homogeneous mixture, which is then moulded and dried completely. The resultant product has the properties of wood, and can be reinforced by introducing perforated strips of wood in the paste.—A. P.-C.

**Apparatus for Log Pile Fire Prevention.**—Can. patent No. 216,276, Spray Engineering Co., assignee of B. R. T. Collins, Feb. 28, 1922. The entire surface of the pile is sprayed by means of a suitable water distributing system (e. g., pipe lines supported from the log conveyor) through nozzles at a pressure of about 70 pounds per square inch, thus forming a fog or mist over the whole pile.—A. P.-C.

**Log Peeler.**—Can. patent No. 214,197, H. Guettler, assignee of Fibre Making Processes, Nov. 8, 1921. The logs are tumbled by means of a series of (preferably T) bars, attached to sprocket chains having a partly straight and partly concave path.—A. P.-C.

**Method and Apparatus for Loosening Bark from Pulpwood.**—U. S. patent No. 1,402,138, G. P. Berkeley, Jan. 3, 1922. The wood on its way to the barking drums is passed through a tank of water kept at a relatively high temperature, the wood being kept wholly submerged during its passage. It is claimed that by this preliminary treatment: (1) the capacity of the

drum barkers is increased 20-50 per cent; (2) there is no "brooming" of the ends of the logs because they do not remain so long in the drums; (3) the drums can be run "dry" increasing the value of the bark as fuel; (4) the method and apparatus can be used the year round with a relatively small steam consumption.—A. P.-C.

**Recovery of By-Products from Greenwood Waste Waters.**—Can. patent No. 214,080, C. F. Burgess Laboratories, assignee of H. F. Weiss, Nov. 1, 1921. The water separated from the pulp is recirculated over the grinder until the concentration of organic matter is raised to a maximum consistent with absence of prejudicial effects upon further grinding operations. The waste water is then treated for the recovery of the dissolved materials (sugars, alcohol, galactan, acetic acid, etc.).—A. P.-C.

**Automatic Load Regulator for Motor-Driven Pulp Grinders.**—W. H. Artz, Westinghouse Electric and Mfg. Co. *Chem. Met. Eng.*, xxvi, 367-369 (Feb. 22, 1922); *Paper*, xxix, No. 21, 10-13 (Jan. 25, 1922).—The Westinghouse automatic load regulator equipment consists of a control panel carrying relays, switches and rheostat, the necessary resistance and a motor-operated hydraulic element, controlling the water pressure in the pocket cylinders of the grinders being regulated. The method of operation of the regulator is described and its merits are enumerated. (For description of the General Electric Regulator see *Paper*, xxvi, No. 15, 11-12 (June 16, 1920); *Pulp and Paper*, xviii, 900, D-3-4 (Aug. 26, 1920).—A. P.-C.

**Pulp Wood Grindstone Dresser.**—U. S. patent No. 1,406,138, Wm. P. Aikin, Feb. 7, 1922.—A. P.-C.

**Grindstone Mounting.**—U. S. patent No. 1,405,335, W. E. Rosebush, assignor to Inland Empire Paper Co., Jan. 31, 1922. The stone is held in position on the shaft by means of a flange on each side, which are keyed to bushings fitted on right and left hand screws respectively.—A. P.-C.

**Wood Defiberizer.**—Can. patent No. 216,306, U. S. McMillan, Feb. 28, 1922. Also U. S. Patent No. 1,344,180, June 22, 1920. The wood is subjected to the action of a rotating wire brush which acts in the direction of the grain of the wood.—A. P.-C.

**Wood Pulp Grinder.**—U. S. Patent No. 1,405,356, H. E. Tidmarsh, assignor to Union Iron Works, Jan. 31, 1922. Also Can. patent No. 216,553, March 7, 1922. The slots in the transverse walls of the grinder pockets diverge outwardly, so that as the pulp passes out of the pocket it is given an initial movement outwards tending to carry it over the edge of the stone. This action is completed by a deflecting scraper placed just outside the pocket and as close to the stone as practical, thus practically preventing any pulp from passing into the next pocket and being reground.—A. P.-C.

#### LIST OF ABBREVIATED AND FULL TITLES AND OF ADDRESSES OF THE JOURNALS FROM WHICH ABSTRACTS HAVE BEEN PREPARED FOR THIS ISSUE.

Ber. ....	Berichte der deutschen chemischen Gesellschaft. F. Oppenheim, Lohmühlenstr. 67, Berlin, S. O. 36, Germany.
Chem. Met. Eng. ....	Chemical and Metallurgical Engineering. McGraw-Hill Co., Inc., Tenth Ave. at Thirty-sixth street, New York City.
Chem. Soc. Abs. ....	Journal of the Chemical Society—Abstracts, Gurney & Jackson, 33 Paternoster Row, London, E. C. 4, England.
Chimie et Industrie. ....	Chimie et Industrie, 49 Rue des Mathurins, Paris, France.
J. Ind. Eng. Chem. ....	Journal of Industrial and Engineering Chemistry. Charles L. Parsons, 1709 G street, N. W., Washington, D. C.
Koll. Chem. Beihefte. ....	Kolloidchemische Beihefte. Theodor Steinkopff, Dresden and Leipzig, Germany.
Paper .....	Paper, 251 West Nineteenth street, New York City.
Paper Ind. ....	Paper Industry, 356 Monadnock Block, Chicago, Ill.
Paper Trade J. ....	Paper Trade Journal, 10 East Thirty-ninth street, New York City.
Papeterie .....	La Papeterie, 9 Rue LeGrange, Paris (5 <sup>e</sup> ), France.
Papier .....	Le Papier, 16 Rue du Rocher, Paris (8 <sup>e</sup> ), France.
Pulp and Paper. ....	Pulp and Paper Magazine of Canada. Gardenvale, Que., Canada.

## BIBLIOGRAPHY OF PAPERMAKING FOR 1921

Technical Association of the Pulp and Paper Industry, Committee on Bibliography, Contribution No. 36

BY CLARENCE JAY WEST, CHAIRMAN, COMMITTEE ON BIBLIOGRAPHY, T. A. P. I.

(Continued from last week.)

## Drying.

- Briner, E. A.** Practise of ventilation of paper machine rooms. Paper 27, No. 22, 23-25, 38 (Feb. 2, 1921); J. Eng. Inst. Can. 4, No. 1, 28-31 (Jan., 1921).
- Drying felt.** Wochbl. Papierfabr. 52, No. 26, 2108-2109 (June 30, 1921); No. 33, 2666-2667 (Aug. 20, 1921).
- Drying of handmade cardboard.** Papier-Ztg. 46, No. 116, 3971-3972 (Oct. 27, 1921).
- Drying of paper.** Chem. Met. Eng. 24, 361 (Feb. 23, 1921).
- Electrically heated drying cylinders in paper and board machines.** Wochbl. Papierfabr. 52, No. 23, 1853 (June 11, 1921).
- Farnsworth, F. C.** Drying paper, temperature control and heat conservation. Paper Mill 44, No. 9, 20, 22, 24, 44 (Feb. 26, 1921).
- Fulton, Wm. B.** Fulton system for drying paper. Technical Assn. Papers 4, 34-36 (1921).
- Heating the drying cylinder.** Wochbl. Papierfabr. 52, No. 25, 2019-2020 (June 25, 1921).
- Howell, W. H.** Ventilation of the machine room with the Briner economizer. Paper 28, No. 11, 32-33 (May 18, 1921); Power 53, 720 (May 3, 1921); Technical Assn. Papers 4, 40-43 (1921).
- Lassberg, von.** Steam consumption in drying. Papierfabr. 19, No. 37, 989-992 (Sept. 16, 1921).
- Leeper, R. W.** Steam economy in drying on and driving of paper machines. Paper Ind. 3, No. 1, 123-126 (Apr., 1921); Technical Assn. Papers 4, 8-11 (1921).
- Oil-Containing vapors for the drying cylinders.** Zellstoff u. Papier 1, No. 2, 60-61 (May 1, 1921).
- Ryan, Edward A.** Heating and ventilation of paper machine rooms. J. Eng. Inst. Can. 4, No. 1, 21-27 (Jan., 1921); Paper 27, No. 21, 16-20, 36-44 (Jan. 26, 1921); Heat. and Vent. 18, 31-33 (Apr., 1921); 31-33 (May, 1921).
- See, Jay.** Moisture content of paper during formation. Pulp Paper Mag. Can. 19, No. 34, 877-878 (Aug. 25, 1921).
- Smith, H. F.** How to eliminate condensation in the paper mill. Paper Ind. 2, No. 12, 1835-1837 (Mar., 1921).
- Strauch, F.** Technical studies upon heating the drying cylinder. Wochbl. Papierfabr. 52, No. 1, 21-23; No. 2, 96-97; No. 3, 3170-3173 (Jan., 1921).
- Strauch, F.** Efficiency of the drying parts. Papierfabr. 19, No. 44, 1249-1251 (Nov. 4, 1921).
- Strauch, F.** Relation of evaporation to the amount of steam. Wochbl. Papierfabr. 52, No. 22, 1768-1771 (June 4, 1921).
- Taylor, H. S.** Ventilation of machine rooms in the paper mill. Paper 28, No. 1, 11-16 (Mar. 9, 1921); Eng. Ind. Man. 5, 351-353 (Mar. 24, 1921).
- Thunholm, K. L.** Saving steam in drying machines. Svensk Pappers Tidnings 24, 132-134 (1921); C. A. 15, 1993.
- Theory and practice of drying.** Papierfabr. 19, No. 16, 369-370 (Apr. 22, 1921).
- Wihan,** Rotating filters and high pressure presses for drying pulp. Wochbl. Papierfabr. 52, No. 38, 3094-3097 (Sept. 23, 1921).

## Chemical Analysis.

- Analysis of adhesives.** Methods of the Institute for "Kolloidforschung" at Frankfurt. Papier-Ztg. 46, No. 13, 521 (Feb. 13, 1921).
- Bergman, G. K.** Rapid method of control analysis of the liquor in the manufacture of sulphate cellulose. Finsk Pappers- och Travarutidskrift, No. 15, 1921; Pulp Paper Mag. Can. 19, No. 1, 11-12 (Jan. 6, 1921); C. A. 15, 1213.
- Chambovet, A.** Analysis of sulphite cooking liquors. Pape- terie Oct., Nov., 1920. Paper 27, No. 25, 16-19 (Feb. 23, 1921).
- Dieckman, R.** Simple method for the determination of sulphur dioxide and sulphur trioxide in sulfur burner gases. Papier- fabr. 19, No. 13, 285-287 (Apr. 1, 1921); Paper Trade J. 73, No. 2, 36-38 (July 14, 1921); Pulp Paper Mag. Can. 19, No. 52, 1303 (Dec. 21, 1921); C. A. 15, 2261.
- Ehrlich, Felix.** Estimation of pectin bodies. Paper 28, No. 4, 26-27, 39 (Mar. 30, 1921).
- Fleischer, Hermann C.** Determination of sulfur in "gasmasse." Zellstoff u. Papier 1, No. 3, 73-74 (June, 1919).
- Groger, Max.** Sulphite liquor. Z. angew. Chem. 34, 383 (1921); C. A. 15, 3744.
- Heuser, Emil.** Determination of methylpentosans in plant materials. Paper 28, No. 9, 26-27 (May 4, 1921).
- Heuser, Emil.** Determination of pentosans in plant materials. Paper 28, No. 4, 22-25, 38; No. 8, 28-32 (Mar. 30, Apr. 27, 1921).
- Krull, Hans.** Determination of sulfuric acid in roasting gases by means of a gas washing flask. Papierfabr. 19, No. 5, 93-95 (Feb. 4, 1921).
- Le Chatelier, A.** Outline of laboratory tests used in pulp and paper making. Chim. et. Ind. 4, 529-542 (Oct., 1921); Paper 28, No. 8, 17-21 (Apr. 2, 1921).
- MacDonald.** Chemical standards for technical valuation of raw materials. World's Paper Trade Rev. 75, No. 12, 1042-1046; No. 13, 1172-1184 (Mar. 25, Apr. 1, 1921); C. A. 15, 2183.
- Melander, K. H. A.** Quantitative determination of methyl alcohol. Svensk Pappers Tidning 1921, No. 14, 277.
- Method for the control of sulphate liquors.** Paper Trade J. 73, No. 7, 34, 36 (Aug. 18, 1921).
- Moe, Carl.** Evaluation of lime by causticizing tests. Paper 28, No. 7, 232 (Apr. 20, 1921); Paper Mill 44, No. 17, 20 (Apr. 23, 1921); Technical Assn. Papers, 4, 46 (1921); Paper Trade J. 72, No. 16, 205 (Apr. 14, 1921).
- Roselund, Per.** Methyl red as an indicator in the titration of sulphite liquors. Zellstoffchem. Abhandlungen 1, No. 5, 121-122 (Jan-Feb., 1921); C. A. 15, 2722.
- Sander, A.** Determination of sulphur dioxide and sulphur trioxide in roasting gases and oleum. Chem.-Ztg. 45, No. 33, 261-263 (1921).
- Schwalbe, Carl G.** Simplification of the methods for the in- vestigation of plant raw materials, etc. Zellstoff u. Papier 1, No. 1, 1-5 (Apr. 1, 1921); C. A. 15, 2722.
- Scott, J.** Soda and its analysis. Paper Maker 62, No. 1, 48-49 (July, 1921).

Howard Bond



Howard Ledger

**"The Paper of Many Uses"**

*Manufactured by*

**THE HOWARD PAPER COMPANY,**

**Urbana, Ohio**

**CENTRAL MANUFACTURING COMPANY**

THE QUICK SERVICE HOUSE

KALAMAZOO, MICH.

Manufacturers of

High Grade Brass and Bronze Screen Plates and Dandy Rolls

OLD PLATES  
CLOSED AND RECUT



DANDY ROLLS AND  
WATER MARKING

*Secure Our  
Prices*



*We Can  
Please You*

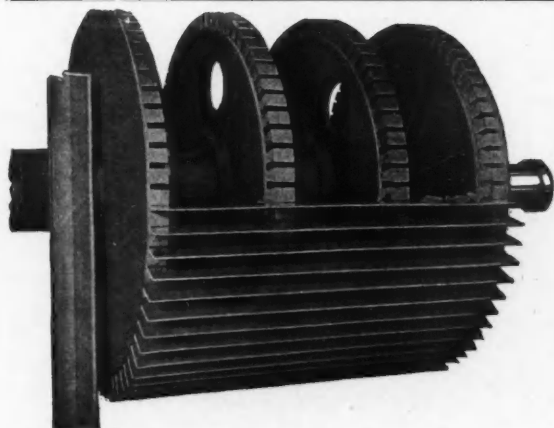
Super Calenders  
Breaker Calenders  
Friction Calenders  
Embossing Calenders  
Hydraulic Presses and Pumps



*Successors to the Granger Foundry & Machine Co.*

**The Textile-Finishing Machinery Company**

PROVIDENCE, R. I.



**Dilts Machine Works, Inc.**

Fulton, N. Y., U. S. A.

Manufacturers of

**BEATING and WASHING ENGINES**

**FLY BARS—BED PLATES—**

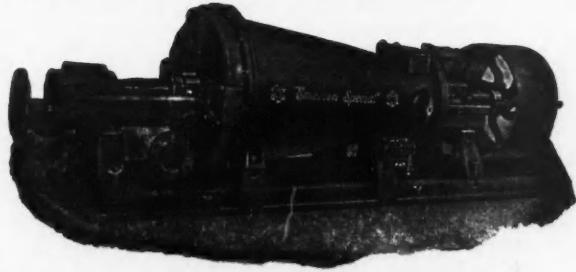
**MACHINE KNIVES**

Our new **KEYED TYPE BANDLESS ROLL** is the final result of Many Years of Experience.

May we not tell you about its many advantages?

- Sieber, Rudolph.** Calcium analysis in fresh sulphite liquors by Feld-Sander's method. *Zellstoffchem. Abhandlungen* 1, No. 1, 1-8 (June 15, 1921); *Paper* 28, No. 3, 19-22 (Mar. 23, 1921).
- Sieber, R.** Sulphur determination in roasted pyrites. *Zellstoff und Papier* 1, No. 3, 75-78 (June, 1921).
- Sieber, R.** Titration of sulphite liquors. *Zellstoffchem. Abhandlung* 1, No. 4, 95-104 (1921); *Paper* 28, No. 5, 24-27 (Apr. 6, 1920).
- Testing lime for causticizing soda.** *Paper* 29, No. 8, 14-15 (Oct. 26, 1921).
- Tucker, E. C.** Analytical and testing methods. *Technical Assn. Paper* 4, 52-56 (1921).
- Testing Pulp.**
- Boija-Jarpen, J.** Water determination in pulp. *Svensk Pappers-Tidning* 1921, No. 15, 298.
- Crossley, T. L.** Moisture testing—what about the man. *Paper Ind.* 3, No. 6, 828-829 (Sept., 1921); *World's Paper Trade Rev.* 76, No. 18, 1566 (Oct. 28, 1921).
- Dry content of wood pulp.** *Papier-Ztg.* 46, No. 47, 814-815 (May 19, 1921).
- Estimating moisture in pulp.** *Paper* 29, No. 14, 9-4 (Sept. 28, 1921).
- Forest Products Laboratories.** Rapid method for determining moisture content of wood. *Technical Note* No. 143. Apr. 15, 1921.
- Gemmel, G. H.** Testing of wood pulp. *Pulp Paper Mag. Can.* 19, No. 21, 555-557 (May 26, 1921); C. A. 15, 2985.
- Hardy stock regulator.** *Pulp Paper Mag. Can.* 19, No. 5, 147 (Feb. 3, 1921).
- Marr, Ralph, and Collins, Grellet, N.** Strength testing of soda pulps. *Technical Assn. Papers* 4, 6-7, 29 (1921).
- Sindall and Bacon.** Testing wood pulp—a control method for dry chemical pulp. *Paper Makers'—Mo. J.* 59, 4-5 (Jan., 1921).
- Stephenson, J. N.** Why pay for water? *Paper Ind.* 3, No. 8, 1129-1130 (Nov., 1921).
- Testing of wood pulp shipments for content of air dry pulp.** *Pulp Paper Mag. Can.* 19, No. 29, 757-760 (July 21, 1921); *Paper Ind.* 3, 563-567 (1921); C. A. 15, 4049.
- Trimbey, E. J.** A new weightometer. *Paper* 28, No. 7, 78-79 (Apr. 20, 1921); *Paper Ind.* 3, No. 1, 137, 139, 141 (Apr., 1921); *Paper Mill* 44, No. 16, 92,306 (Apr. 16, 1921); *Paper Trade J.* 72, No. 16, 237 ff. (Apr. 14, 1921); *Technical Assn. Papers* 4, 36-38 (1921).
- Tucker, E. C.** Moisture testing of wood pulp. *Technical Assn. Papers* 4, 57-59 (1921).
- Wahlberg, H. E.** Determination of resin, cellulose and specific gravity. *Svensk Pappers Tidning* 24, 108-112 (1921); C. A. 15, 1991.
- Williams, F. M.** Measuring the moisture content of ships. *Paper* 28, No. 7, 63-65 (Apr. 20, 1921); *Paper Mill* 44, No. 20, 14 (May 14, 1921); *Technical Assn. Papers* 4, 29 (1921).
- Paper Testing.**
- Bachelder, C. L.** Pulp evaluation as affected by the fiber ratio in the test sheets 1, *Paper Ind.* 2, No. 10, 1555, 1557, 1559 (Jan., 1921); C. A. 15, 1214.
- Blasweiler, T. E.** The testing of hand sheets in the laboratory. *Papierfabr.* 19, No. 15, 344-346 (Apr. 15, 1921).
- Campbell, Ross.** Effect of humidity on the moisture content of paper. *Paper Trade J.* 73, No. 2, 30, 32, 34 (July 14, 1921); C. A. 15, 4050.
- Elmendorf, Armin.** Principle of the Elmendorf Paper Tester. *Paper* 28, No. 23, 15, 17 (Aug. 10, 1921); *Elec. Rev.* 79, 180 (1921); C. A. 15, 3205, 3746.
- Fournier, Raymond.** Measurement of translucency and opacity of paper. *Papier* 23, 257-259 (Nov., 1920); *Paper* 27, No. 23, 32, 44 (Feb. 9, 1921).
- Gartland, I. L.** The microscope and its relation to the pulp and paper mill. *Pulp Paper Mag. Can.* 19, No. 13, 347-349; No. 14, 375-377 (Mar. 31, Apr. 7, 1921); *Paper* 27, No. 26, 14-17, 36 (Mar. 2, 1921); C. A. 15, 1398.
- Herig, Fr.** Testing the absorption capacity of spinning paper for moisture. *Papierfabr. Fest- u. Auslandheft* 1921, 32-34; C. A. 15, 2984.
- Herzberg, Wm.** Influence of moisture on paper tests. *Paper Trade J.* 73, No. 24, 47-48 (Dec. 15, 1921); *Paper* 29, No. 14, 16-18 (Dec. 7, 1921).
- Houston, Paul L.** Preliminary study of tearing instruments and tearing tests for paper testing. U. S. Bureau of Standards, *Technologic paper* No. 194 (1921). 18 pp. 5c.
- Houston, Paul L.** Study of test methods for the purpose of developing standard specifications for paper bags for cement and lime. U. S. Bureau of Standards, *Technologic Paper* 187. (1921). 19 p.
- Houston, Paul L.** Testing of blotting paper. *Paper Trade J.* 73, No. 19, 88-90 (Nov. 10, 1921).
- Improved Elmendorf paper tester, with simple moisture content indicator.** *Paper* 28, No. 10, 16-17 (May 11, 1921).
- Ingersoll, L. R.** The glarimeter, an instrument for measuring the finish of paper. *Paper Ind.* 2, No. 12, 1847-1848 (Mar., 1921); *Paper* 27, No. 23, 18, 42 (Feb. 9, 1921); *Zellstoff u. Papier* 1, No. 2, 59 (May, 1921).
- Isnard, R.** Analysis of cardboard. *Bulk and calendering. Papeterie*, 43, 102-106 (Feb. 10, 1921); *Paper Trade J.* 73, No. 12, 44, 46 (Sept. 22, 1921); C. A. 15, 1214.
- Isnard, R.** Analysis of cardboard. *Elasticity. Papeterie* 43, 578-586 (1921); *Paper Trade J.* 73, No. 16, 40, 42, 44 (Oct. 20, 1921); C. A. 15, 3205.
- Klein, A.** Strength of paper. *Papier-Ztg.* 46, No. 81, 2786 (Aug. 6, 1921).
- Lofton, Roscoe, E., and Merritt, M. F.** Method for differentiating and estimating unbleached sulphite and sulphate pulps in paper. U. S. Bureau of Standards, *Technologic Paper* No. 189 (1921); 18 pp. 5c. See C. A. 15, 1213.
- Malcolmson, J. D.** Effect of age on the bursting strength of corrugated fiber board. *Pulp Paper Mag. Can.* 19, No. 16, 435 (Apr. 21, 1921).
- Marx, R.** New tearing tester. *Paper Makers' Mo. J.* 59, 151-154 (1921); C. A. 15, 2183.
- Moisture content.** *Pulp Paper Mag. Can.*; *World's Paper Trade Rev.* 76, No. 16, 1342, 1344, 1346 (Oct. 14, 1921).
- New paper tester.** *World's Paper Trade Rev.* 75, No. 2, 172, 174 (Jan. 14, 1921).
- New tearing strength tester.** *Paper* 29, No. 9, 26-27 (Nov. 2, 1921).
- Paper testing.** *Papier-Ztg.* 46, No. 22, 1005-1006 (Mar. 17, 1921).
- Tearing strength of paper.** *Papier-Ztg.* 46, No. 121, 4137-4138 (Nov. 8, 1921).
- Sindall and Bacon.** The glarimeter. *Paper Makers' Mo. J.* 59, No. 3, 94-95 (Mar. 15, 1921).
- Tensile paper tester.** *World's Paper Trade Rev.* 75, No. 5, 468 (Feb. 4, 1921).

**EMERSON MANUFACTURING CO. LAWRENCE MASS.**



See the Second-Hand Machinery ads and note the ABSENCE of

**EMERSON BEATING ENGINES**

They seldom wear out and are never thrown out. PERFECT CIRCULATION. NO "PADDLING."

**The "EMERSON" JORDAN**

does its work with half the power required by others of no greater capacity.

WRITE FOR DETAILS

**WE** specialize in durable Fourdrinier Wires and Cylinder Wires in any metal desired up to and including 120 mesh in plain woven, double warp, triple chain, and twisted weaves.

Save two-thirds the cost and three-quarters of the expense of putting on brass and bronze wires by using our nickel alloy wires.

**Joseph O'Neill Wire Works**

Port Chester, N. Y.  
Established 1906

**F. L. Smithe Machine Co. Inc.**

MANUFACTURERS OF

**ENVELOPE MACHINERY**

for making any style envelope, regular or special. Printed, stamp embossed and tissue lined envelopes.

Also die presses, tension machines, and metal clasp machines, and all other machinery used in manufacture of envelopes.

Designing, pattern making and machine work.

150 Eleventh Avenue, New York City,  
New York, U. S. A.

For reliable running and average long life

**Lindsay Fourdrinier Wires**

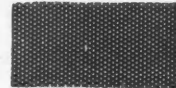
ARE UNSURPASSED

We make them for the largest and fastest machines.  
Cylinder Wires all sizes.

**The Lindsay Wire Weaving Co.**  
COLLINWOOD STA. CLEVELAND, OHIO

**Perforated Metal Screens**

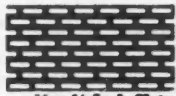
For Pulp and Paper Mills



STEEL, COPPER, BRASS, BRONZE  
and other Alloys

.06 Inch Round

punched for Centrifugal and  
Rotary Screens, Pulp Washers,  
Drainer Bottoms, Filter Plates, etc.



1/4 x 1/4 Inch Slots

**CHARLES MUNDT & SONS**  
53-55 FAIRMONT AVE. JERSEY CITY, N. J.

**WILLIAM A. HARDY & SONS COMPANY, Fitchburg, Mass., U. S. A.**

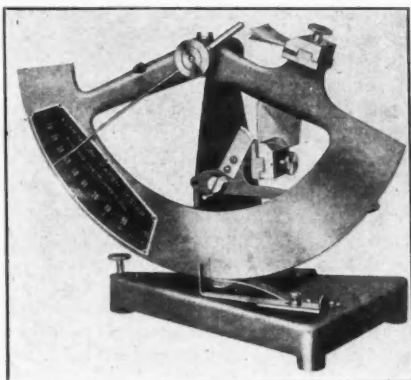


- Testing of filter paper.** Zellstoff u. Papier 1, No. 2, 61-62 (May, 1921).
- Testing of paper.** Sci. Am. Mo. 3, 371-372 (Apr., 1921).
- Thwing, C. B.** Simple moisture content indicator. Paper Ind. 3, No. 1, 121-123 (Apr., 1921); Paper 28, No. 10, 16-17 (1921); Technical Assn. Papers 4, 47-48 (1921); C. A. 15, 2354.
- U. S. Bureau of Standards.** Testing of paper. Circular of the Bureau of Standards, No. 107, 37 p. (Feb. 12, 1921). C. A. 15, 3745.  
Introduction, Quality of paper. Physical testing. Chemical testing. Microscopical testing. Bibliography. Regulations regarding testing.
- Volume composition of air space in paper.** Paper 29, No. 4, 24-25 (Sept. 28, 1921).
- Wilen, K. G.** Testing of paper. Zellstoff u. Papier 1, No. 3, 86-87 (June, 1921).
- Wisbar, G.** Iodine solutions in the microscopy of paper. Papier-Ztg. 46, No. 24, 1098-1099 (Mar. 24, 1921); Papierfabr. 19, 399 (1921); Paper Trade J. 73, No. 3, 24-25 (Aug. 4, 1921).
- Special Papers.**
- Argy, M., and Homme, H.** Preparation of "teerdach" paper. Papeterie 43, No. 8, 345 (Apr. 25, 1921).
- Bishop, B. M.** Why? (Boxboard). Paper 28, No. 17, 24, 28 (June 29, 1921); Paper Trade J. 72, No. 24, 43 (June 9, 1921).
- Blotting paper.** Papier-Ztg. 46, No. 45, 1769 (May 14, 1921).
- Board manufacture.** Wochbl. Papierfabr. 52, No. 11, 812-813; No. 14, 1065-1066; No. 21, 1646-1648; No. 26, 2107-2108; No. 44, 3609-3611; No. 49, 4044-4048; No. 51, 4234-4235 (1921).
- Boström, B.** Preparation of imitation hand made paper by machine. Paper 29, No. 3, 15-17 (Sept. 21, 1921); Papier-Ztg. 46, No. 74, 2581-2582 (July 21, 1921).
- Calender roll paper.** Papierfabr. 19, No. 32, 843-844 (Sept. 12, 1921).
- Clayton, Richard.** Better grades of straw board. Paper Ind. 2, No. 10, 1540-1541 (Jan. 1921); C. A. 15, 1214.
- Clayton, Richard.** Waste in box-board mills. Paper Ind. 3, No. 6, 823-824 (Sept., 1921); World's Paper Trade Rev. 76, No. 18, 1518 (Oct. 28, 1921).
- Ebbinghaus, Paul.** Thin drawing paper. Wochbl. Papierfabr. 52, No. 39, 3173 (Sept. 30, 1921).
- Fuchs, W.** Pasteboard. Deut. Färber-Ztg. 57, 27-28 (1921); C. A. 15, 1074.
- Green, J. R. B.** Hand made filter papers. J. Soc. Chem. Ind. 40, No. 6, 100; Paper 28, No. 9, 14, 40 (May 4, 1921); Papier-Ztg. 46, No. 68, 2413 (July 7, 1921); C. A. 15, 1810.
- Groud, Cr.** Japanese hand made paper. Paper 29, No. 11, 16-17 (Nov. 16, 1921).
- Herzberg, W.** German cigarette papers. Papierfabr., Fest- u. Auslandheft 1921, 35-38; C. A. 15, 2984.
- Hunter, Dard.** Watermarking hand made papers. Sci. Am. 124, 248 (Mar. 26, 1921); Paper 28, No. 17, 12-13, 30 (June 29, 1921).
- Jones, A. R. R.** Vulcanized fiber and its uses. Pulp Paper Mag. Can. 19, No. 44, 1121-1122 (Nov. 3, 1921).
- Lambrette, A.** Preparation of "teerdach" paper. Papeterie 43, No. 5, 194 (Mar. 10, 1921).
- Langston, Samuel M.** Manufacture of corrugated fiber board and boxes. Fiber Container 6, No. 12, 18 ff. (Dec., 1921).
- Macklen, G. A., and Ross, H. N.** Manufacture of box board and solid fiber board. Fiber Container 6, No. 11, 12 ff. (Nov., 1921).
- Micoud, H.** Copying qualities of letter-copying paper. Moniteur 52, 647-649 (Oct. 15, 1921); Paper Trade J. 73, No. 26, 47-48 (Dec. 29, 1921).
- Marion, Clarke.** Report of the committee on coated and processed papers. Paper 28, No. 7, 30-33 (Apr. 20, 1921); Technical Assn. Papers 4, 48-52 (1921).
- Miller, R.** Use of casein for coating papers. Papeterie 43, 157-158 (1921); C. A. 15, 1398.
- Murphy, L. T.** This and that in manufacturing test container board. Paper Ind. 3, No. 3, 443-444 (June, 1921); Paper Mill 44, No. 24, 18 (June 11, 1921).
- Papyro.** Essential conditions for photographic paper. Papeterie 43, No. 12, 533 (June 25, 1921).
- Paper for calender rolls.** Papierfabr. 32, 843 (1921).
- Pfister, Joel.** The chemist in a board mill. Paper 27, No. 18, 12, 30 (Jan. 5, 1921).
- Photographic papers—Care in its manufacture.** World's Paper Trade Rev. 75, No. 8, 690 (Feb. 25, 1921).
- Postl, H.** Preparation of hard boards. Wochbl. Papierfabr. No. 47, 3865-3868 (Nov. 26, 1921).
- Postl, H.** Preparation of hard boards. Wochbl. Papierfabr. 52, No. 50, 4154 (Dec. 17, 1921).
- Preparation of asbestos papers.** Papeterie 1921, No. 11. Papier-Ztg. 46, No. 66, 2351-2352 (July 2, 1921).
- Printing paper, its preparation and utilization.** Papier-Ztg. 46, No. 111, 3901-3902; No. 112, 3841-3843; No. 113, 3873-3874; No. 114, 3905-3907 (1921).
- Production of leather board.** Papierfabr. 19, No. 47, 1358-1365; No. 49, 1429-1433 (Nov. 25, Dec. 9, 1921).
- Schenck, Wm. T.** Manufacture of coated paper. Paper Trade J. 72, No. 24, 56, 58 (June 9, 1921); Paper 28, No. 18, 13-14 (July 6, 1921); C. A. 15, 3745; Pulp Paper Mag. Can. 19, No. 51, 1276 (Dec. 22, 1921).
- Schumann, G.** Blotting and filtering papers. Papier-Markt, Jan. 1, 1921; Pulp Paper Mag. Can. 19, No. 5, 131 (Feb. 3, 1921).
- Schumann, G.** Parchment and imitation parchment. Papier-Markt, Mar. 19, 1921; Pulp Paper Mag. Can. 19, No. 18, 478 (May 5, 1921).
- Schweitzer, Louis.** Characteristics of cigarette papers. Paper 28, No. 2, 14, 36 (Mar. 16, 1921); World's Paper Trade Rev. 75, No. 21, 1854-1855 (May 27, 1921); Paper Makers' Mo. J. 59, No. 5, 193 (May 16, 1921); Papier-Ztg. 46, No. 56, 2067 (June 9, 1921); C. A. 15, 3745.
- Scott, James.** Iodoform paper—a useful novelty. Paper 28, No. 3, 14-15 (Mar. 23, 1921).
- Strength in fiber boxes.** World's Paper Trade Rev. 76, No. 17, 1476 (Oct. 21, 1921).
- Silvester, W. H.** Boxboards and the multi-cylinder mould machine. Paper Maker 61, No. 6, 85-1852 (June, 1921); Paper Ind. 3, No. 5, 727-729 (Aug., 1921).
- Walther, Bruno.** Manufacturing copying and carbon papers. Chem. Ztg. 45, 287-288 (1921); C. A. 15, 4049.
- Waste in box board mills.** Pulp Paper Mag. Can. 19, No. 46, 1170 (Nov. 17, 1921).
- Weniger, K. A.** Preparation of asbestos paper and boards. Vienna, Hartleb's Verlag, 1920. Reviewed in Papierfabr. 19, 8.

(To be concluded.)



## ELMENDORF PAPER TESTER



**DETERMINES  
PAPER  
QUALITY**

THWING INSTRUMENT CO.

3341 Lancaster Ave. PHILADELPHIA  
New York Office, 47 W. 18th St.

## THE SHEPARD ELECTRIC LIFTABOUT



The *LiftAbout* provides power lifting for every handling operation

The *LiftAbout*, the new and smaller electric hoist performs every necessary lifting and conveying operation. It serves sidewalk hatch or stairway, taking the heavy and bulky rolls from wagon or truck and lowers them to storage rooms. This is but one of the many duties that a *LiftAbout* performs in paper mill, warehouse, or printing plant.

With a *LiftAbout* one man can do the work of many, in less time and with far more efficiency. Due to quantity production, it is surprisingly low in cost. Easily and quickly installed to operate on overhead track, anywhere.

Now is the time to scrutinize your handling costs. Investigate the economies of the *LiftAbout* for your load moving jobs. Furnished for both direct and alternating current. Capacities  $\frac{1}{2}$  and 1 ton.

Shepard also builds electric cranes and hoists in capacities to 30 tons.

**SHEPARD ELECTRIC CRANE & HOIST CO.**  
378 Schuyler Ave., Montour Falls, N. Y.  
Branches in principal cities  
Member Electric Hoist Mfrs.' Assn.



## Jenkins Iron Body Y Valve

Strong and rigid valves with full, straight opening which offers practically no obstruction to the free passage of steam or fluids. For boiler blow-off and for handling thick fluids. Fitted with Jenkins renewable disc and renewable seat rings. Standard and extra heavy patterns.



Fig. 297,  
Jenkins  
Standard  
Iron Body  
Y or  
Blow-Off  
Valve,  
flanged.

Jenkins Valves are made in types and sizes for all requirements, and are obtainable through supply houses everywhere. Jenkins "Diamond" and signature on the body identify the genuine.

**JENKINS BROS.**

New York  
Chicago  
Boston  
Philadelphia  
Montreal  
London

**Jenkins Valves**  
SINCE 1864

## New York Market Review

OFFICE OF THE PAPER TRADE JOURNAL,  
WEDNESDAY, May 10, 1922.

During any one particular week it is practically impossible to detect a pronounced change in one direction or another when one is dealing with as slow-moving a factor as the paper industry. If a graph were made, however, on a scale large enough to show week-by-week stages in the paper market, and extending back over the past few years, the curve of progress would be seen to rise at a definitely steady angle. Statisticians are agreed on that point. Yet the changes are not of such a nature that they would make themselves apparent in sporadic weekly outbursts. Company policies have been altered to meet the unnatural conditions with which the industry has been confronted; the general attitude of the manufacturer necessarily changed during the war. His product was universally sought; he was solely concerned with production, and such elements as competition did not materially affect the situation. The market for his goods was there.

The gradual change back to pre-war conditions, when the salesman had to get out and *sell* his company's product—not merely take orders—is bringing back into play many old time business ethics and principles nearly forgotten for a few years of abnormal prosperity. Paper manufacturers realize now that quality cannot be sacrificed even when prices seem to prohibit the sale of a standardized product. They have discarded, in the main, the notion of stocking up on inferior grades of paper—which are, after all, unacceptable to the consumer at any price, and are directing more attention to quality. To enable them to make this temporary sacrifice for the benefit of the consumer, they have utilized every expedient possible for the amelioration of business conditions and the liquidation of production costs.

They have made detailed studies of the cost of production and have applied this knowledge to the existing situation. They have come to recognize the value of honest competition and have seen the futility of price wars, preferring rather to beat their competitors by putting out better merchandise, and affording better service than to openly fight them. New uses for paper and its allied products are constantly being brought to light, and manufacturers are not slow to realize the opportunity that this affords to relieve the top-heavy production and stimulate their volume of business.

The demand for news print has continued unabated and manufacturers are satisfied that it will remain in good demand. All over the country consumption is increasing due to larger editions and more advertising space. Less foreign competition than has previously existed makes it more profitable for the domestic manufacturer and the market is generally conceded to be in an unusually healthy condition.

Prices on book paper have remained constant throughout the past week, but the additional number of inquiries which have been coming in of late indicate that considerable activity is pending. Confidence has been restored in the market with resulting benefits to manufacturers.

Both export and domestic demands on the fine paper market seem to have reawakened during the past week after quite a period of dullness. Merchants in and about New York report greatly stimulated activity among the better grades of sulphite bonds and feel confident that the market is becoming more stable.

Keeping pace with many other grades of paper, tissue did not fail to register a forward movement last week. It was stated that transactions of a larger scale were beginning to come back to the tissue market. This may probably be traced to the Rochester strike settlement and the greatly increased use which is anticipated by the clothing industry.

Kraft is active but business is not reviving by leaps and bounds. A satisfying steady demand keeps manufacturers operating somewhat less than capacity on wrapping papers, and prices are generally believed to be firm.

Board manufacturers and dealers have not been able to see the light of day for some time, their chief solace being in the fact that the market could not be much worse. The increasing cost of coal combined with the decreasing prices on most grades of board have served to depress even the more optimistic in the trade. Folding boxboard has been the mainstay, however, during the past few weeks, and even this has been moving quietly of late.

### Mechanical Pulp

Dealers are beginning to buy better grades of mechanical pulp to meet the insistent demands of the consuming trade. This points to a considerable strengthening in one of the most important markets, but comes as a logical sequence to the rapid strides which have been apparent in the news print industry. Dealers are coming to accept the present prices as legitimate ones and their increased confidence has done much to strengthen the general tone of the market. During the past week unusual interest was shown in the groundwood market and transactions were consummated on a much larger scale.

### Chemical Pulp

It is generally believed that chemical pulp prices will not go any lower for some time to come. Last week no changes were evident with the exception of an increased volume of business to merchants on the higher grade pulps. Bleached sulphite pulp, both imported and domestic, appeared to be in greater demand by consumers. All over the country the market prices are considered fair under existing conditions, and recent competition of foreign sulphite has brought prices to a competitive standard. Dealers predict that any alteration in prices within the next few months will be in an upward direction.

### Old Rope and Bagging

With prices on these commodities at an exceedingly low level, interest in the market for old rope and bagging gives evidences of revival. Several good sized orders were reported during the last week, but generally speaking the average transaction is not for any sizable quantity. The fact that a certain degree of confidence is being restored should do much to overcome the bad effects of the hand-to-mouth type of buying which has been prevalent.

### Waste Paper

This market has shown sharp advances during the period of one week, all grades moving freely. It is stated that there are not enough of the better grades of waste paper available to take care of the demand. The west has entered into the market and the increased activity thus stimulated has tended to greatly decrease the ready stocks. It was stated on reliable authority that mixed papers were selling for as high as 75 cents per 100 pounds in the west. Book and shavings have registered considerable activity in the New York market and the situation as a whole takes on a much firmer aspect in the eyes of both merchants and manufacturers.

### Rags

New rags are in fair demand and supplies of the better grades of both new and old rags are scanty. Nos. 1 and 2 whites and higher grade thirds and blues have stiffened and a new lot of inquiries lead packers to believe that prices will advance. Western merchants have also invaded this market, several having contracted for goodly quantities. An advance in the price of low grade rags is anticipated by many, but the market has remained firm during the past week.

Market Quotations

Paper Company Securities

New York Stock Exchange closing quotations May 9, 1922.

Table with columns: Company Name, Bid, Asked. Includes American Writing Paper Company, International Paper Company, etc.

Because of the unusual conditions prevailing in the various markets quotations are more or less nominal.

Paper

Table of Paper prices including Ledgers, Bonds, Writings, News, Tissues, Kraft, Manila, Fiber Papers, Wax Paper, Glassine, etc.

Domestic Rags

Table of Domestic Rags prices including White, Repacked, Black, Cloth, etc.

Foreign Rags

Table of Foreign Rags prices including New Light Silesias, Light Flannelettes, etc.

Mechanical Pulp

Table of Mechanical Pulp prices including No. 1 Imported, No. 1 Domestic.

Chemical Pulp

Table of Chemical Pulp prices including Sulphite, Bleached, Easy Bleaching, etc.

Bagging

Table of Bagging prices including Gunny No. 1, Foreign, Domestic, etc.

Twines

Table of Twines prices including Cotton, No. 1, No. 2, No. 3.

Table of various paper products including India, Light, Dark, B. C., etc.

Old Waste Papers

Table of Old Waste Papers prices including Shavings, Flat Stock, Manila, News, etc.

CHICAGO

[FROM OUR REGULAR CORRESPONDENT.]

Paper

Table of Paper prices in Chicago including All Rag Bond, No. 1 Rag Bond, etc.

Old Papers

Table of Old Papers prices including Shavings, Ledgers and Writings, etc.

PHILADELPHIA

[FROM OUR REGULAR CORRESPONDENT.]

Paper

Table of Paper prices in Philadelphia including Bonds, Ledgers, Writings, etc.

Table of Best Tarred paper prices including Best Tarred, 1-ply, 2-ply, 3-ply.

Bagging

Table of Bagging prices including Gunny No. 1, Foreign, Domestic, etc.

Old Papers

Table of Old Papers prices including Shavings, No. 1, No. 2, etc.

(Continued on page 70)

# Imports and Exports of Paper and Paper Stock

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

## NEW YORK IMPORTS

WEEK ENDING MAY 6, 1922

### SUMMARY

News Print.....	3,841 rolls
Printing Paper.....	2,983 rolls, 38 cs., 993 bls.
Surface Coated Paper.....	94 cs.
Wall Paper.....	9 cs., 1,596 rolls, 24 bls.
Cigarette Paper.....	349 cs.
Tissue Paper.....	5 cs.
Filter Paper.....	5 cs.
Drawing Paper.....	5 cs.
Photo Paper.....	3 cs.
Parchment Paper.....	15 cs.
Colored Paper.....	15 cs.
Wrapping Paper.....	856 bls., 633 rolls
Miscellaneous Paper.....	237 cs., 151 bls., 3,263 rolls

### CIGARETTE PAPER

British American Tobacco Co., Median, Liverpool, 25 cs.
Rose & Frank, W. Eldara, Dunkirk, 50 cs.
American Tobacco Co., W. Eldara, Dunkirk, 54 cs.
American Tobacco Co., Schodack, Havre, 162 cs.
Rose & Frank, Schodack, Havre, 35 cs.
The Surbrug Co., La Savoie, Havre, 27 cs.

### WALL PAPER

A. C. Dodman, Jr., Kroonland, Antwerp, 4 cs.
A. Murphy & Co., Kroonland, Antwerp, 5 cs.
F. G. Prager, Lapland, Antwerp, 1,596 rolls.
Bernard Judae & Co., Schoharie, Hamburg, 24 bls.

### SURFACE COATED PAPER

Gevaert Co. of America, Kroonland, Antwerp, 20 cs.
--

### PRINTING PAPER

J. & J. Scott, Hawaiian, Hamburg, 89 rolls.
Chemical National Bank, Hawaiian, Hamburg, 50 rolls.
B. F. Drakenfeld & Co., Median, Liverpool, 27 cs.
Irving National Bank, Hudson, Bremen, 716 bls.
Irving National Bank, Hudson, Bremen, 209 rolls.
L. Schulmann & Co., Hudson, Bremen, 363 rolls.
Bible & Tract Society, Hudson, Bremen, 88 rolls.
Chemical National Bank, Hudson, Bremen, 1,570 rolls.
H. Reeve Angel & Co., Hudson, Bremen, 97 rolls.
H. Reeve Angel & Co., Hudson, Bremen, 37 bls.
J. B. Harris Co., Hudson, Bremen, 55 bls.
J. B. Harris Co., Hudson, Bremen, 42 rolls.
J. L. N. Smythe & Co., Mt. Clinton, Hamburg, 21 rolls.
J. L. N. Smythe & Co., Mt. Clinton, Hamburg, 11 cs.
Irving National Bank, Yorck, Bremen, 457 rolls.
Whiting & Patterson, Granite State, Bremen, 185 bls.

### NEWS PRINT

Parsons & Whittemore, Granite State, Bremen, 1,216 rolls.
Irving National Bank, Granite State, Bremen, 434 rolls.
L. Glickman & Co., Granite State, Bremen, 212 rolls.
Irving National Bank, Hawaiian, Hamburg, 192 rolls.
New York American, Gustavsholm, Hallstanik, 1,787 rolls.

### FILTER PAPER

H. Reeve Angel & Co., Rotterdam, Rotterdam, 5 cs.
---

### DRAWING PAPER

H. Reeve Angel & Co., Rotterdam, Rotterdam, 4 cs.
---

### PHOTO PAPER

T. F. Wilmot & Co., Valacia, London, 3 cs.
--

### PARCHMENT PAPER

French Worsted Co., Lapland, Antwerp, 15 cs.
--

### COLORED PAPER

Borden-Riley Paper Co., Lapland, Antwerp, 15 cs.
--

### WRAPPING PAPER

Fernstrom Paper Co., Tyrifjord, Trondhjem, 58 bls.
International Acceptance Bank, Tyrifjord, Trondhjem, 79 bls.
International Acceptance Bank, Tyrifjord, Trondhjem, 167 rolls.
E. C. Melby & Co., Tyrifjord, Trondhjem, 13 bls.
Wilkinson Bros. & Co., Inc., Tyrifjord, Trondhjem, 466 rolls.
Wilkinson Bros. & Co., Inc., Tyrifjord, Trondhjem, 55 bls.
Wilkinson Bros. & Co., Inc., Tyrifjord, Ranheim, 2,388 bls.
International Acceptance Bank, Tyrifjord, Ranheim, 232 bls.
Atlantic National Bank, Mt. Clinton, Hamburg, 131 bls.

### PAPER

Birn & Wachenheim, Noordam, Rotterdam, 10 cs.
Litho Print Co., Noordam, Rotterdam, 2 cs.
Keuffel & Esser, La Savoie, Havre, 4 cs.
Blaueit-Wiley Paper Mfg. Co., Gustavsholm, Gothenburg, 76 bls.
Blaueit-Wiley Paper Mfg. Co., Gustavsholm, Gothenburg, 128 rolls.
Arkell Safety Bag Co., Gustavsholm, Gothenburg, 16 rolls.
Arkell Safety Bag Co., Gustavsholm, Gothenburg, 21 bls.
J. W. Banker, Gustavsholm, Gothenburg, 112 rolls.
D. S. Walton & Co., Gustavsholm, Narrkoping, 217 rolls.
D. S. Walton & Co., Gustavsholm, Narrkoping, 54 bls.
Kern Commercial Co., Rotterdam, Rotterdam, 93 cs.
P. C. Zuhlke, Lapland, Antwerp, 118 cs.
A. Bleyer & Co., Granite State, Bremen, 2,469 rolls.
J. B. Harris & Co., Inc., Granite State, Bremen, 53 rolls.
Irving National Bank, Granite State, Bremen, 380 rolls.
Whiting & Patterson, France, Havre, 2 cs.
Rose & Frank, France, Havre, 8 cs.

### RAGS, BAGGING, ETC.

American Woodpulp Corp., Granite State, Bremen, 206 bls. rags.
Albion Trading Co., Bacchus, Marseilles, 32 bls. rags.
Ladenburg, Thalman & Co., Seattle Spirit, Belfast, 39 bls. paperstock.
Ladenburg, Thalman & Co., Schoharie, Hamburg, 12 bls. flax waste.
Parsons & Whittemore, Schoharie, Hamburg, 444 bls. rags.
A. Hurst & Co., Lepanto, Antwerp, 52 bls.
Castle, Gotthel & Overton, Lepanto, Antwerp, 260 bls. rags.
Castle, Gotthel & Overton, Chicago, Hamburg, 269 bls. rags.
Castle, Gotthel & Overton, Chicago, Hamburg, 54 bls. bagging.
Railway Mfrs. Supply Co., Chicago, Hamburg, 100 bls. cotton waste.
D. M. Hicks, by same, 260 bls. bagging.
E. J. Keller Co., Inc., Chicago, Hamburg, 110 bls. bagging.
E. J. Keller Co., Inc., Rotterdam, Rotterdam, 17 bls. rags.
G. W. Millar & Co., Noordam, Rotterdam, 430 bls. rags.
G. W. Millar & Co., Noordam, Rotterdam, 213 bls. bagging.
Ladenburg, Thalman & Co., R. Dollar, Genoa, 45 bls. cotton waste.
R. F. Downing & Co., Hoosac, London, 367 bls. rags.
B. D. Kaplan & Co., Median, Liverpool, 27 bls. rags.

### OLD ROPE

First National Bank of Boston, Fred VIII, Copenhagen, 83 coils.
First National Bank of Boston, Rotterdam, Rotterdam, 103 coils.
Brown Bros. & Co., Exeter City, Bristol, 320 coils.

### CHINA CLAY

Luke Knowles, Exeter City, Bristol, 100 tons.
---

### CASEIN

F. H. Kalbfleisch Corp., Sark, Buenos Aires, 3,584 bags, 215,040 kilos.
---

### WOOD PULP

M. Gottesman & Co., Noordam, Rotterdam, 575 bls. wood pulp.
Kelly & Co., Gustavsholm, Gothenburg, 1,000 bls. wood pulp.
H. Hollesen, Yorck, Bremen, 2,722 bls. wood pulp.
Castle, Gotthel & Overton, Schoharie, Hamburg, 750 bls. wood pulp, 150 tons.

## BOSTON IMPORTS

WEEK ENDING MAY 6, 1922

Johanesen & Co., Gustavsholm, Gothenburg, 762 bls. wood pulp, 152 tons.
Scandinavian American Trading Co., by same, 7,366 bls. wood pulp, 1,472 tons.
C. K. MacAlpine, by same, 236 bls. paper.
C. K. MacAlpine, by same, 3,289 bls. paper.
J. A. & W. Bird & Co., Songdad, Buenos Aires, 1,373 bags cascin.

## PHILADELPHIA IMPORTS

WEEK ENDING MAY 6, 1922.

Castle, Gotthel & Overton, Hoosac, London, 221 bls. rags.
Parsons & Whittemore, Bacchus, Marseilles, 87 bls. paper stock.
Ladenburg, Thalman & Co., Schoharie, Hamburg, 88 bls. rags.
Salomon Bros. & Co., by same, 90 bls. rags.
Coal & Iron Nat'l Bank, by same, 58 bls. rags.
Castle, Gotthel & Overton, Carson, Hamburg, 246 bls. rags.
Castle, Gotthel & Overton, Blydendyk, Rotterdam, 2,240 bls. rags.
Hudson Trading Co., Oregonian, Hamburg, 138 rolls news print.
H. Reeve Angel & Co., Schoharie, Hamburg, 103 bls. print paper.
Paper House of Pennsylvania, by same, 723 bls. print paper.
Paper House of Pennsylvania, by same, 1,626 rolls print paper.
F. Enders Co., Inc., by same, 250 bls. wood pulp, 51 tons.

## BALTIMORE IMPORTS

WEEK ENDING MAY 6, 1922.

American Wood Pulp Corp., Gustavsholm, Gothenburg, 454 rolls news print.
--

## NEW ORLEANS IMPORTS

WEEK ENDING MAY 6, 1922.

E. J. Keller Co., Inc., Noccalula, Hamburg, 130 bls. bagging.
Hudson Trading Co., W. Caddo, Hamburg, 371 rolls news print.

## NORFOLK IMPORTS

WEEK ENDING MAY 6, 1922.

Hudson Trading Co., City of Flint, Hamburg, 20 rolls news print.
--

## GALVESTON IMPORTS

WEEK ENDING MAY 6, 1922.

M. Gottesman & Co., Inc., Delaware, Christiania, 313 reels news print.
--

# AD PAX

## PAPER

*"It more than Wraps—  
It Advertises"*

AdPax—A family of papers.  
Not for one retail business—  
But one for every retail  
business.  
And each as profitable  
as the other.

**FRED C. STRYPE**  
320 Broadway, New York

## Unglazed Pure Kraft Paper No. 1

We have a limited quantity  
available for shipment in

**JUNE**

**M. G. KRAFT FOR JULY  
SHIPMENT**

*Lowest Market Prices*

**FERNSTROM PAPER CO., Inc.**

*Scandinavian Paper Mills' representatives*

150 Nassau Street New York City

Tel. Beekman 5801

Also at London Stockholm San Francisco

# Clay

300 Tons daily

Entire production of a group of  
mines under one management in-  
sures uniformity in quality and  
minimum production costs.

*Let us submit samples and quote you*

AMERICAN MADE  
FOR AMERICAN TRADE



110 William Street  
New York

1864

1922

## "EXCELSIOR" FELTS

for every grade of

### PULP AND PAPER

We continue to maintain at the top the quality  
of Excelsior Felts, as we have done since we, as  
pioneers, made the first endless paper machine  
felts manufactured in America.

**S**eamless felts for fast running.  
atin Style felts for finish.  
pecial felts to meet every condition.  
end us your felt problems.

**KNOX WOOLEN COMPANY**  
CAMDEN, MAINE

SOLD BY

**BULKLEY, DUNTON & COMPANY**

75-77 Duane St., N. Y., and direct

## Miscellaneous Markets

OFFICE OF THE PAPER TRADE JOURNAL,  
WEDNESDAY, May 10, 1922.

**BLEACHING POWDER.**—Despite the fact that most manufacturers are carrying large stocks of this commodity, they are, in general, holding the market firm at the somewhat lower price of \$1.60 per pound, works. The slack demand from the textile trade has resulted in large quantities of bleach accumulating at various plants and there is a tendency to shade the price on large quantity purchases.

**BLANC FIXE.**—Still quoted in the neighborhood of 3.50 to 3.75 cents per pound, the blanc fixe market appears to be assuming additional signs of firmness. Demand is light and transactions have been largely confined to small quantities, but activity has been stimulated by the increased use of blanc fixe by paper manufacturers.

**CASEIN.**—This product is being held at higher price levels, due to the greatly increased demand and comparative scarcity of casein. The New York market price of 10 cents a pound is not favorable enough to attract Argentine casein to the domestic market and European demand makes it difficult to secure any large quantity.

**CAUSTIC SODA.**—An unprecedented demand has drained heavily on the available supplies of caustic soda until it is practically impossible to secure 100 tons of the chemical at any price. It is quoted at 3.25 cents a pound, contract, and the market has exhibited ample signs of strength.

**CHINA CLAY.**—The market for China clay is progressively active, the gradually increasing demand tending to give the situation a firm aspect. English clays are quoted at \$13 to \$18 a ton, domestic washed at \$8 to \$10, and unwashed from \$6 to \$8.

**LIQUID CHLORINE.**—Quoted at the slightly lower level of 5 to 6 cents a pound in the 100-pound cylinders, liquid chlorine is generally being sold for less than manufacturing cost. The difficulty of storing the product, combined with the relatively unsteady demand, has brought about exceedingly low quotations from manufacturers. Chlorine in tank cars has been quoted as low as 4 cents a pound.

**ROSIN.**—Unusual firmness has characterized the rosin market for the past few weeks, both foreign and domestic demands having increased noticeably. 280-lb. barrels are still quoted about \$5.20 and the steady demand would indicate that this figure will not vary to any great extent.

**SALTCAKE.**—Increased activity in many lines has strengthened the saltcake market. Chromecake is still firm at \$18, and acidcake at \$20 to \$21 a ton shows equal signs of stability.

**SATIN WHITE.**—Quoted at the low price of 1.50 cents per pound nominally, since there is hardly sufficient activity to demonstrate a market, satin white has shown a very gradual improvement during the past week.

**SULPHUR.**—Mine quotations on sulphur of \$15 to \$17 per net ton may be considered fairly firm as the brimstone market continues to gain strength. Prices f.o.b. New York range from \$18 to \$20.

**STARCH.**—The demand for starch continues steady, and the grade used by paper manufacturers remains firm at 2.50 cents a pound in carload lots.

**SULPHATE OF ALUMINA.**—A firm market holds the price of this chemical firm at 1.40 cents per pound on the eastern seaboard, while many western manufacturers are quoting as low as 1.25. Iron free has been selling at the somewhat stiffer price of 2.15 to 2.35 cents a pound.

**SODA ASH.**—Quiet but steady, the soda ash market seems to be on a sure footing. Manufacturers have been experiencing difficulties with coal supplies, but the product holds fairly firm at the quoted price of 1.50 cents a pound, works.

**TALC.**—At \$16 to \$18. per ton, talc has evinced renewed signs of activity. The market is more firm and the product has been in much heavier demand.

## Market Quotations

(Continued from page 67)

Solid Ledger Stock.	2.00	@	2.25	New Black Soft.	.03	@	.03 1/4
Writing Paper.	1.80	@	2.00	New Light Sec-			
No. 1 Books, heavy.	1.50	@	1.75	onds	.02	@	.02 1/4
No. 2 Books, light.	1.20	@	1.50	Khaki Cuttings.	.02 1/4	@	.03 1/4
No. 1 New Manila.	2.75	@	3.00	Corduroy	.02	@	.02 1/2
No. 1 Old Manila.	1.50	@	1.75	New Canvas.	.07	@	.07 1/2
Container Manila.	1.00	@	1.10	New Black Mixed	2.75	@	3.00
Old Kraft.	1.90	@	2.00	Old			
Overissue News.	.75	@	.80	White, No. 1—			
Old Newspaper.	.50	@	.60	Repacked	.06	@	.06 1/2
No. 1 Mixed Paper.	.45	@	.50	Miscellaneous	.04 1/4	@	.04 3/4
Common Paper.	.40	@	.50	White, No. 2—			
Straw Board, Chip.	.40	@	.45	Repacked	.03	@	.03 1/2
Binders' Bd. Chip.	.40	@	.45	Miscellaneous	.02 1/4	@	.02 1/2
Domestic Rags—New.				Thirds and Blues—			
Price to Mill, f. o. b. Phila.				Repacked	1.65	@	1.80
Shirt Cuttings—				Miscellaneous	1.40	@	1.55
New White, No. 1	.09 1/4	@	.09 3/4	Black Stockings—	1.75	@	2.25
New White, No. 2	.05	@	.06	Roofing Stock—			
Silestias, No. 1.	.04 1/2	@	.05	No. 1.	.90	@	1.00
New Unbleached.	.08 1/2	@	.08 3/4	No. 2.	.80	@	.80
Washables	.03	@	.03 1/2	No. 3.	.70	@	.80
Fancy	.04 1/2	@	.05	No. 4.	.70	@	.80
Cottons—according to grades—				No. 5A.			nominal
Blue Overall.	.04	@	.04 1/2	B.			nominal
New Blue.	.02	@	.02 1/4	C.			nominal

## BOSTON

[FROM OUR REGULAR CORRESPONDENT.]

### Paper

Bonds	.07	@	—
Ledgers	.08	@	.09
Writings	.12	@	.05
Superfine	.12	@	.13
Fine	.10	@	.10 1/2
Books, S. & S. C.	.07	@	.07 1/2
Books, M. F.	—	@	.06 1/2
Books, coated.	.07 1/2	@	.08 1/2
Label	.08 1/2	@	—
News sheets.	3.05	@	—
News, rolls.	3.75	@	4.00
Manilas—			
No. 1 Manila	\$.675	@	—
No. 1 Fibre	6.00	@	6.25
No. 1 Jute.	8.50	@	9.00
Kraft Wrapping	7.00	@	—
Common Bogus	3.00	@	—

### Boards

(Per Ton Destination)			
Chip	\$.35.00	@	—
News, Vat Lined.	\$.37.50	@	39.00

## TORONTO

[FROM OUR REGULAR CORRESPONDENT.]

### Paper

(Mill Prices to Jobbers f. o. b. Mill)			
Bond—			
Sulphite	.11	@	.12 1/2
Light tinted	.12	@	.13 1/2
Dark tinted	.13 1/2	@	.15
Ledgers (sulphite)	—	@	.13
Writing	.10 1/2	@	.13 1/2
News, f. o. b. Mills			
Rolls (carloads)	3.50	@	—
Sheets (carloads)	—	@	4.25
Sheets (2 tons or over)	—	@	4.50
Book—			
No. 1 M. F. (carloads)	9.50	@	—
No. 2 M. F. (carloads)	8.50	@	—
No. 3 M. F. (carloads)	8.00	@	—
No. 1 S. C. (carloads)	10.00	@	—
No. 2 S. C. (carloads)	9.00	@	—
No. 1 Coated and litho.	15.00	@	—
No. 2 Coated and litho.	14.00	@	—
No. 3 Coated and litho.	13.25	@	—
Coated and litho, colored	15.25	@	—
Wrapping—			
Gray	4.75	@	—
White Wrap.	5.25	@	—
"B" Manila	5.75	@	—
No. 1 Manila	7.50	@	—
Fibre	7.25	@	—
Kraft, M. F. or M. G.	8.75	@	—

### Pulp

(F. o. b. Mill)			
Ground wood	\$.25.00	@	32.50
Sulphite easy bleach	—	@	65.00
ing	60.00	@	65.00
Sulphite news grade	50.00	@	60.00

Wood, Vat Lined.	.47.50	@	—
Filled News Board.	.37.50	@	—
Solid News Board.	.42.50	@	45.00
S. Manila Chip.	52.50	@	—
Pat. Coated.	70.00	@	75.00

### Old Papers

Shavings—			
No. 1 Hard White	3.50	@	3.75
No. 1 Soft White	3.00	@	3.25
No. 1 Mixed.	1.50	@	1.75
Ledgers & Writings	.03	@	—
Solid Books.	1.75	@	2.00
Blanks	1.30	@	1.45
No. 2 Books Light.	.60	@	.70
Folded News, over-			
issues	\$.11.50	@	12.50
Mixed paper.	.47.50	@	50.00
Gunny Bagging.	.75	@	.80
Manila Rope.	4.25	@	4.50
Common Paper.	.35	@	.40
Old News.	.80	@	—
Old Kraft.	1.75	@	1.80

### Old Waste Papers

(In carload lots, f. o. b. Toronto)			
Shavings—			
White Env. Cut.	3.75	@	—
Soft White Book			
Shavings	3.15	@	—
White Bl'k News.	1.60	@	—
Book and Ledger—			
Flat Magazine and			
Book Stock (old)	1.45	@	—
Light and Crum-			
pled Book Stock	1.30	@	—
Ledgers and Writ-			
ings	1.80	@	—
Solid Ledgers.	1.80	@	—
Manilas—			
New Manila Cut.	2.00	@	—
Printed Manila.	.50	@	—
Kraft	2.25	@	—
News and Scrap—			
Strictly Overissue	.90	@	—
Folded News.	.90	@	—
No. 1 Mixed Pa-			
pers	.60	@	—
Domestic Rags—			
Price to mills, f. o. b. Toronto.			
Per lb.			
No. 1 White shirt			
cuttings	.09 1/4	@	.10
No. 2 White shirt			
cuttings	.05 1/4	@	.05 3/4
Fancy shirt cut-			
tings	.05	@	—
No. 1 Old whites	.04	@	—
Thirds and blues	.02	@	.02 1/2
Per cwt.			
Black stockings.	1.75	@	1.85
Roofing stock:			
No. 1.	1.35	@	—
No. 2.	1.20	@	—
Roofing stock:			
Manila rope.	.04 1/4	@	.04 3/4
No. 2.	.01 1/2	@	—
Gunny bagging.	1.00	@	1.25

*The Home of Quality*



FACTORY  
132<sup>ND</sup> TO 133<sup>RD</sup> ST & BROOK AVE

# PAPER BAGS

Sacks and Specialties

ESTABLISHED 1901

## SCHORSCH & CO.

Manufacturers

500 East 133d Street : New York

This Registered Trade  
Mark Octagon



on a Paper  
Bag Vouches for  
Its Good Quality

# Buchanan & Bolt Wire Company

ESTABLISHED 1878 AT HOLYOKE, MASS.

Makers of Highest Grade Fourdrinier Wires, Dandy Rolls, Cylinder Covers, Brass Wire Cloth  
of all Meshes for Paper, Pulp and Coating Mills—Quality Guaranteed

We make a specialty of Fine Wires for Magazine and Book Papers

## Felt Test—Lowest Cost per Ton

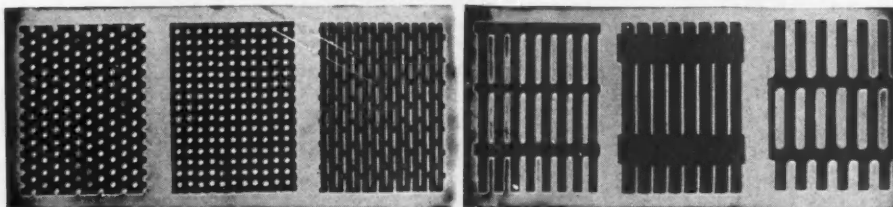
If you judge felt values, not by what you put into the equipment, but what you get out of it—then you will specify ORR 3 stripe Endless Felts, for ORR felts will produce the lowest cost per ton. They “stand up” under severe usage. Orr durability is acknowledged everywhere. Their strength and long life are as dependable as their reliability and quality.

In the 32 grades of Felts and Jackets we can match your most exacting demands. Tell us the kind of paper you desire to make, and we will send you samples of felts that will economically serve you and help you to produce paper at lowest cost per ton.

**THE ORR FELT & BLANKET COMPANY, Piqua, Ohio**

## PERFORATED METALS

All sizes  
and  
shapes  
of Holes



All kinds  
and  
thicknesses  
of Metal

For Centrifugal and Rotary Screens, Drainer Bottoms, Filter Plates, Pulp Washers, etc.

### The Harrington & King Perforating Company

618 No. Union Ave., Chicago, Ill., U. S. A.

New York Office, 114 Liberty St.

# WANT AND FOR SALE ADVERTISEMENTS

## CLASSIFIED RATES

Minimum rate for advertisements of 25 words or less, first insertion, \$1.00.

**SITUATION WANTED**, 4 cents a word for first insertion and 2 cents a word for each subsequent insertion of same ad. No ad of less than 25 words accepted.

**HELP AND MISCELLANEOUS WANTS**, and small For Sale Ads, 4 cents a word for each and every insertion. No ads of less than 25 words accepted.

When answering advertisements, please address the Box Number given in ad.

Answers can be forwarded care Paper Trade Journal, and will be promptly forwarded without extra charge. All should be sent to the New York office, 10 East 39th street. And all should be addressed as the advertisement directs in every case and not simply to the paper.

All classified ads for the current issue must be in hand not later than Monday preceding date of publication.

## HELP WANTED

**SALESMAN WANTED** to sell regular line of wrapping papers, twines, tissues, etc., in New York and Brooklyn. Give full particulars in letter, which will be held in strictest confidence. Address, Box 5070, care Paper Trade Journal. My-11

**SALESMAN WANTED**—Familiar with Paper Bags and Wrappings. Must be live wire. District to be worked is portion of large Canadian City. Give full particulars and salary expected. Address, Box 5072, care Paper Trade Journal. My-11

**ENGINEERS—DRAFTSMEN**—A leading organization has position open for energetic, live and experienced resident engineer for paper mill construction; also in need of three or four draftsmen familiar with general plant equipment, lay-out in connection with paper, pulp and sulphite work, men of at least five years' experience wanted. Salary will be in accordance with ability. Address, Box 5007, care Paper Trade Journal. My-11

**BAG PRINTER WANTED**—One capable of taking complete charge of bag printing, composition, and stereotyping department. State experience, salary expected, etc. Address, Box 5008, care Paper Trade Journal. My-11

**WANTED**: Superintendent for solid container box factory operating Swift Automatic Cutters and Creasers. Address, Box 5024, care Paper Trade Journal. My-11

**WANTED**: For Board Mill, Western New York, machine Tender and Beaterman. Must be a No. 1 on container, news and manilla lined. State wages required. Address, Box 5025, care Paper Trade Journal. My-11

**EXPERIENCED MEN IN PAPER INDUSTRY**: Write for information concerning our confidential and personal service. We are daily receiving requests for men with definite experience and ability. Address, The Industrial Bureau, 1502 Monadnock Block, Chicago, Ill. My-11

## EXPORT MANAGER

Large New York Paper Exporters have excellent opening for man who has specialized in export of paper, particularly to Latin America. Knowledge of Spanish important. State age, experience, remuneration expected. Address, Box 5085, care Paper Trade Journal. My-11

## HELP WANTED

**WANTED**—Wrapping Paper Salesman for Pittsburgh territory. Must possess experience and full knowledge of coarse paper line. Address, Box 5069, care Paper Trade Journal. My-11

**TISSUE MILL** wants Machine Tenders. State experience and type machines you have worked on. Address, Box 5071, care Paper Trade Journal. My-11

**SALESMEN: TOILET PAPER**—Experienced men who can sell quality toilet papers to the better class of jobbers. Our line will require carrying a complete set of samples in order to show the grades and exact appearance of the finished product. Good territory available. Universal Crepe and Tissue Mills, Inc., 117 East 18th St., New York City. My-25

**WANTED**—Boss finisher, mill making high grade bonds and ledgers; located Western Massachusetts. In replying give age, experience and references. Address, Box 5073, care Paper Trade Journal. My-11

**WANTED**—Machine tenders, back tenders and finishers for a new one machine mill to make high grade book, writing and bond papers. Located in a good city—two tours. Highest wages paid to steady and experienced men, no others need apply. Non-union men preferred. State age, married or single. Previous employers. Correspondence treated confidentially. Address, Box 5074, care Paper Trade Journal. My-18

**WANTED**—Two first class beatermen experienced in beating cotton for high grade blotting, writing, bonds and ledger papers. Must be first class color men also. Two tours. State age, married or single, and where employed. Correspondence confidential. Address, Box 5075, care Paper Trade Journal. My-18

**WANTED**—A good salesman to sell toilet paper in Philadelphia and vicinity. In reply state age, experience and approximate salary desired. Address, Box 5076, care Paper Trade Journal. My-11

**WANTED**—Experienced General Superintendent for Kraft Pulp and Paper Mill. Good salary paid to right man. Give full particulars. Address, Box 5077, care Paper Trade Journal. My-18

**WANTED**—Superintendent for Kraft Pulp Mill. Good salary paid to right man. Only experienced men need apply. Address, Box 5078, care Paper Trade Journal. My-18

**WANTED**—Thoroughly competent man to run calender and press roll grinder. Lobbell machine. News mill. Address, with full particulars, Box 5084, care Paper Trade Journal. My-25

**WANTED**—Experienced man on Langston Corrugator. Must be familiar with Asbestos Paper. Address, Box 5086, care Paper Trade Journal. My-11

**WANTED**—Finisher capable taking charge stock and deliveries, Jobber's Warehouse. Give experience and wages expected. Address, Box 5089, care Paper Trade Journal. My-25

**WANTED**: A first class Boss Finisher. One machine mill in Western New York making fine papers. Good wages and living conditions. No labor troubles. Address, 107 Maple St., North Agawam, Mass. My-11

**MACHINE DESIGNER WANTED**: One having experience in designing pulp screens, thickeners and wet machines preferred. Plant located half way between Boston and Providence. Address, Box 5043, care Paper Trade Journal. Je-8

**SALESMAN WANTED**: To travel in Middle West selling envelopes and paper bags to jobbing trade, must have knowledge of paper. Give full particulars regarding past experience. Address, Box 5044, care Paper Trade Journal. My-11

**WANTED**: First class beater engineer on book and bond. Apply with references to Newton Falls Paper Co., Newton Falls, New York. My-11

## SITUATIONS WANTED

**POSITION WANTED** by practical paper maker and mechanic and good organizer. What kind of position have you to offer? Address, Box 5079, care Paper Trade Journal. Je-2

**WANTED**—By a practical paper maker, a position as salesman with reliable wire or felt manufacturer. Address, Box 5080, care Paper Trade Journal. My-18

**PAPER SALESMAN** in New York City who can produce a large volume of business with adequate co-operation, desires connection. Drawing account on Commission basis. Correspondence invited. Address, Box 4635, care Paper Trade Journal. My-11

**WANTED POSITION**—As superintendent, Twenty-one years' experience; used to Specialties, Colors and Wrapping, all grades of Boards and Fibres. Knows how to handle help. Can keep up repairs. Used to Four-drummer and Cylinder Machines. Address, Box 4786, care Paper Trade Journal. My-11

**DOES YOUR MILL pay?** If not, why not have a superintendent with proven ability and experience that will make it pay? Address, Box 4977, care Paper Trade Journal. My-11

**SUPERINTENDENT** of ability open for position with good company making box board, container board, wall board, Bristol board or straw. A man that understands a plant thoroughly and gets good results. Address, Box 4997, care Paper Trade Journal. My-11

**SUPERINTENDENT - MANAGER** Wants position. Twenty years' experience on all grades paper. Expert on colors. Four-drummer and cylinder machines. Best references. Address, Box 4988, care Paper Trade Journal. My-11

**MASTER MECHANIC** desires position. Twenty years' experience in mills of all grades of paper and pulp also on steam, water and electric power. Best references. Address, Box 5014, care Paper Trade Journal. My-11

**SITUATION WANTED** by beater engineer with 25 years' experience in fast news mills in States and Canada. Good color man. Best references. Address, Box 5015, care Paper Trade Journal. My-11

**EXPERIENCED PAPER SALESMAN**, 28 years of age, well acquainted with the jobbing trade for the past eight years, desires reputable connection and change from his present position. Eastern or Middle Western territory preferred, but will consider other sections as acquaintanceship is countrywide. I have exceptional wide knowledge of coarse papers. Would prefer a commission proposition. All correspondence will be held strictly confidential. Address, Box 5032, care Paper Trade Journal. My-11

**TORONTO PAPER JOBBERS** and Mills agents desire exclusive agency, commission basis or direct purchase that can compete successfully in Canada in price and quality. Address, Box 5033, care Paper Trade Journal. My-11

**BOOK AND BOND PAPER VERSUS CURLY PAPER**—Papermaker now employed, with references as to character and experienced in increasing the capacity of mill equipment and in eliminating defects in manufacturing, invites inquiries from mills with production limited by any particular department, equipment or difficulty. Assurance that correspondence will be held confidential, would be appreciated and inquiries from mill executives will be so considered. Address, Box 5034, care Paper Trade Journal. My-11

**FOREMAN** desires position with De-inking Plant. Thoroughly understands cooking, grading and bleaching of old papers. Twenty years experience. Married man. Best of references. Address, Box 5035, care Paper Trade Journal. My-11



**SITUATIONS WANTED**

**MAN**—Desires to represent paper manufacturer, New York City. Employed by prominent Paper Export House. Excellent knowledge of paper trade, all phases of traffic accounting, import, export, capable correspondent. Address, Box 5081, care Paper Trade Journal. My-18

**SALESMAN**—Experienced, having been connected with Paper Bag Industry for 10 years, also thoroughly experienced in other branches of the business. Address, Box 5082, care Paper Trade Journal. My-11

**WANTED**—Position as superintendent. Twenty-five years' experience on book, coating, hanging, and tissue papers. Familiar with rag, wood, jute, and old paper stock. Fourdrinier and cylinder machines. Address, Box 5087, care Paper Trade Journal. Je-2

**WANTED**—Position as superintendent by a practical man with eighteen years' of experience on all grades of box board. Correspondence invited. Address, Box 5088, care Paper Trade Journal. My-11

**SITUATION WANTED** as superintendent in fibre board factory. Twenty years' experience in making counter board, insulating board, friction board, gun wadding and various others. American. Address, Box 5048, care Paper Trade Journal. My-18

**COATING MILL SUPERINTENDENT** now employed, would like to correspond with you in regards to that coating mill you have in mind, or would like to correspond with a live concern who would appreciate 20 years of good sound practical experience. For further information, address, Box 5049, care Paper Trade Journal. My-11

**BEATERROOM FOREMAN** open for engagement, expert on colored bristles, twisting fibers, tags, high grade writings, tissues, wrappings, covers and ground wood papers, also rag papers. Twenty years' experience and highest references. Address, Box 5051, care Paper Trade Journal. My-18

**POSITION WANTED:** First class cylinder machine tender, 15 years' experience on all kinds of boards. Good references. Can go anywhere. Address, Box 5053, care Paper Trade Journal. My-18

**EXPERIENCED BOSS BEATERMAN** and color man wants position. Twenty-five years' experience with leading and largest mills making most all grades and colors. Best references. Address, Box 5054, care Paper Trade Journal. J-1

**BUYING AND SELLING POSITION** wanted by young man having three years' experience with prominent paper export firm. Excellent knowledge of sources of supply for paper and boards. Prefer domestic selling or purchasing proposition. Address, Box 5057, care Paper Trade Journal. My-11

**PAPERMAN**, export and domestic experience, desires position. Knows English, Australian and South African markets; very familiar with sources of supply. Salary or commission considered. Address, Box 5058, care Paper Trade Journal. My-11

**YOUNG MAN** having good knowledge of sources of supply, New York City jobbers, exporters, importers, etc., desires position with reputable paper house, can act as buyer or salesman. Will consider commission arrangement. Address, Box 5059, care Paper Trade Journal. My-11

**SULPHITE SUPERINTENDENT** open for position. Eight years' experience. Can handle all maintenance in connection with sulphite mill, including digester linings. Address, Box 5065, care Paper Trade Journal. My-11

**SULPHATE SUPERINTENDENT** who can increase pulp production to a recognized standard for mill in U. S. and Canada, is now open for engagement. Knows mill construction and equipment that is necessary for maximum results. Best of references. Address, Box 5066, care Paper Trade Journal. My-25

**BEATER ENGINEER:** Open for position. Experienced on all grades of Box Boards, tests, etc., also bonds, ledgers and book. Address, Box 5068, care Paper Trade Journal. My-18

**FOR SALE**

**FOR SALE**—Taylor, Stiles No. 2H Tandem Rag Cutter Graphite Bushings in Loose Pulleys. Extra set of knives. Norwood Engineering Co., Standard Rag Thresher N. S. adjustable screen. Holyoke Machine Co., R. H. 5' x 15' Fan Duster. Above new and in perfect condition. Houston Stanwood & Gamble Co. Steam Engine, 11 x 18 slide valve, 18" x 75" pulley. Wheel governor. Correspondence solicited. The Albemarle Paper Mfg. Co., Richmond, Va. My-25

**PROPOSALS FOR THE SALE OF ELECTROTYPE DROSS, PAPER SHAVINGS, LEATHER SCRAPS, ETC.**  
Government Printing Office, Washington, D. C., May 8, 1922.  
Sealed proposals will be received at this office until 2 o'clock p. m., June 5, 1922, for the disposal and sale of Electrotrope Dross, Paper Shavings and Leather Scraps from bindery, Old Roller Composition, Refuse Wood, Empty Barrels, and Sawdust which may accumulate, and for the removal of ashes and debris from the Government Printing Office during the six months beginning July 1 and ending December 31, 1922. The right to reject any and all bids and to waive defects is reserved. Detailed specifications of the estimated quantities to be sold, accompanied by blank proposals and giving regulations with which bidders must comply, may be obtained by addressing  
GEORGE H. CARTER,  
Public Printer.  
My-11-25

**FOR SALE:** 14 Calendar Rolls, 58" face, 3' 14" diameter. 2 No. 1 Clafin Engines. 1 small Jordan Engine. 1 6" Horizontal Water Pump. 2 Air Fans. Complete triple-deck frames for 44 Dryers. Will arrange terms to suit. Chesapeake Paper Board Co., Baltimore, Maryland. 12

**FOR SALE:** Cylinder Press felts 13 x 86 and Cylinder wets 64 x 80, drier felt duck six naught 80 to 86" wide, 32 to 56 yards long, also stock pumps and motors. Address, Box 5038, care Paper Trade Journal. My-11

**Rebuilt Paper Mill Machinery in Stock and Guaranteed**

**NOT WHERE IS AND AS IS**

- FOURDRINIER TISSUE MACHINE**—One 96", one 68".
- FOURDRINIER PARTS**—Pusey & Jones 118", 100" Kutter Trowbridge 96".
- PRESS PARTS FOR PAPER MACHINES**—Pusey & Jones bell crank housing two sets 18"x96", Black & Clawson swing arm housings with rolls.
- DRYERS**—Four 48"x111", thirteen 36"x95", four 48"x68", one 84"x67", eleven 42"x66".
- MARSHALL DRIVES**—Two Black & Clawson self-contained stand with friction clutch cone pulley and 6" mortise gears. Mortise gears and pinions for Pusey & Jones Marshall drives 5" to 8" face.
- CHILLED CALENDERS**—One 66" face, five roll; one 54" face, five roll.
- DILLON DOCTORS**—For Machine Calenders 60" to 120" face.
- SLITTERS AND WINDERS**—One 120" Warren, one 108", 36" Kidders.
- REELS**—Pusey & Jones two drum upright 48" to 114".
- BEATERS**—Five 72"x42" Noble & Wood, one 66"x42" Noble & Wood, equipped with three cylinder washers; one Dilts 62"x50" iron tub, one Jones 62"x52", seven Horne 36"x36". Two No. 2 Clafins, two No. 1 Clafins.
- JORDANS**—One Wagg Majestic, three No. 2 Dillon Improved, one Large Horne, four Monarch, one Jones Standard, two Pope Brushing engines.
- SCREENS**—Six 10 plate open side Packer, two 6 plate, one Moore & White auxiliary.
- STUFF PUMPS**—Deane triplex, 9"x8", Gould triplex 8"x10", Sandusky triplex 4"x6".
- REVOLVING SHEET CUTTERS**—One 104" Horne, five 61" Hamblet, four 61" Finlay, one 50" Hamblet diagonal, one 42" Finlay.
- WET MACHINES**—Four 72" Bagley & Sewall Hydraulic.
- SUPER CALENDERS**—One 45", one 42", one 36" Holyoke.

We have a large number of pumps and over five hundred calendar, press and couch rolls in stock.

**FRANK H. DAVIS COMPANY**  
175 Richdale Ave., Cambridge, 40, Mass.

**AUCTION SALE**

**Northern Fibre Company of Ontonagon, Michigan in Bankruptcy.**

All of the Assets, Real and Personal, of the Northern Fibre Company Will Be Sold at Public Auction at the Premises of the Company in Ontonagon, Michigan, at 1 O'clock in the Afternoon of June 2nd, 1922, Pursuant to Order of the Referee in Bankruptcy.

The property consists of about fourteen acres of land with the pulp mill and machinery and equipment, together with a water intake from Lake Superior.

Buildings consist of the following:—

**Main or Digester Building**

of brick, 185 ft. by 85½ ft. with digesters, wet machines, pulp washer, deckers, knot and sliver machine, screens, generator set, evaporator system, caustic and black liquor tanks, engines, motors, pumps and miscellaneous equipment.

**Wood Room Building**

of brick, 125 ft. by 60 ft. with barking drum, barkers, chipper, engines, conveyors, shafting, and miscellaneous equipment.

**Boiler Room Building**

of brick 125 ft. by 60 ft. with boilers, coal bunker breaching, stack, tanks and other equipment.

About 4,000 cords of spruce, balsam, poplar and birch pulp wood, fire brick, building brick and miscellaneous items will also be sold.

The property is a practically complete pulp mill plant built during the past eighteen months and never operated.

The above property will be offered in bulk and also in lots and parcels and may be inspected at the premises at any time prior to sale.

Terms of sale: The successful bidder at the time of sale will be required to pay in cash or certified check a sum equal to 5% of his bid, the balance to be payable in cash at the time of confirmation of sale.

Trustees reserves right to reject any and all bids. Sales are subject to confirmation by Hon. F. J. Colignon, Referee in Bankruptcy. Full particulars may be obtained from the undersigned trustee.

**Peoples' Savings and Trust Company**

Trustees  
113 North Washington Street,  
Green Bay, Wisconsin

**FOR SALE**

**FOR SALE**—Paper machine reel 110" Face. Heavy pattern revolving reel for 4 drums. Marinette & Menominee Paper Co., Marinette, Wisconsin. **tf**

**FOR SALE**—Roofing and Saturating Machines, 72"x36" wide. Chilled steel rolls. Also Painter Mixing Machine, Grinders, etc. Address Box 4310, care Paper Trade Journal. **tf**

**COAL**—Moshannon and "E Seam" bituminous coals, low sulphur, low ash. Lowest freight rate east and north. Prices and freight rates will be furnished on request. Halden-Kelley Coal Company, 209 Market

**FOR SALE**—Two Dunning and Boschert Hydraulic presses, size 36 x 42", with 12 trucks and 50 extra mats. Address, Box 5020, care Paper Trade Journal. **My-11**

**FOR SALE: DRYERS**—8-60"x120" Dryers with bearings. A bargain. W. V. Sullivan, Call Bldg., San Francisco. **tf**

**MISCELLANEOUS**

**WANTED**—Price on used Piling Machine for piling waste paper bales. The Kolb Carton Co., 146-150 Thompson Street, New York City. **My-18**

**WANTED TO BUY**—Good used Mullen Tester for light weight papers. Write giving full description and price. Address, Box 5083, care Paper Trade Journal. **My-11**

**CASH PAID** for old United States Confederate and foreign postage stamps, used on letters prior to 1870. Send samples. James Hardy, 4522 Forrestville Ave., Chicago, Ill. **oam-1-yr**

**WANTED:** Job lots of Kraft Paper in rolls any size, any diameter. Basis 30 lbs. Mail samples and advise quantity. Address, Box 5061, care Paper Trade Journal. **My-11**

**MISCELLANEOUS**

**OF SPECIAL INTEREST TO MILLS**  
We have about five thousand square feet of surplus floor space in the Paper District in New York, suitable for storage or consignment of paper or kindred products. We are paper jobbers, long established and are well equipped to handle paper, etc., and are open to a proposition to use this additional space to help market your product in New York.

If interested write for further particulars, Address, Box No. 5063, care Paper Trade Journal. **My-11**

**PULP WANTED**—Will pay cash for any quantity Foreign Pulps on spot and to arrive. Send particulars with price. Address, Box 4832, care Paper Trade Journal. **tf**

**SWIFT, GEORGE W., JR.**, Designer and Manufacturer of Special Machinery for Manufacturing and Printing Paper Goods. Bordentown, N. J. **8-24-22**

## Results Speak for Themselves

A recent advertiser in the classified columns of The Paper Trade Journal, after trying other mediums in this field, wrote to us that he received more than five times the results from his ad in The Paper Trade Journal than in all other mediums combined.

This is just another instance of the drawing power of The Paper Trade Journal classified columns.

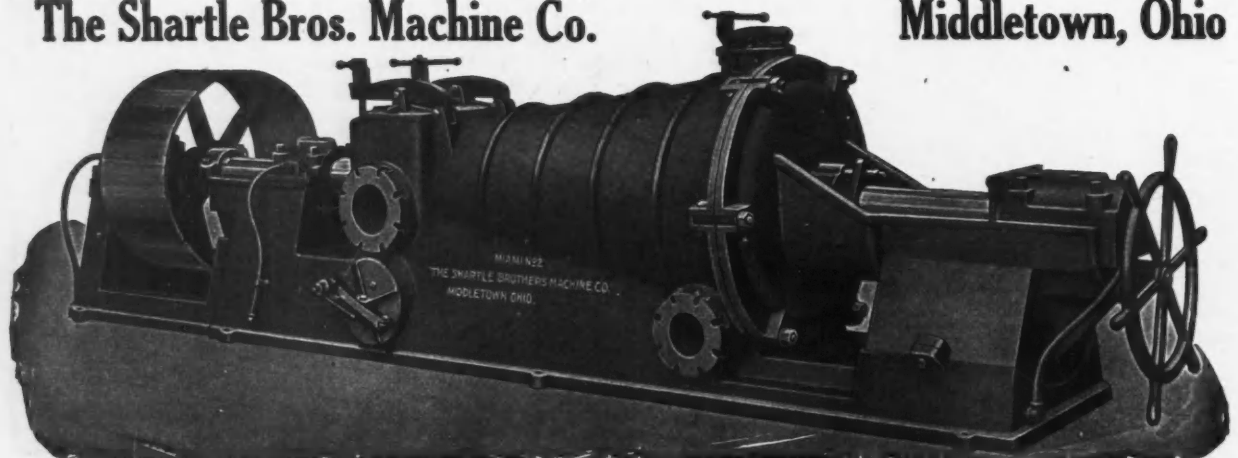
**The Paper Trade Journal**

10 East 39th Street, New York

Phone Vanderbilt 2388

**The Shartle Bros. Machine Co.**

**Middletown, Ohio**



## Manufacture of Pulp and Paper

IN FIVE VOLUMES

Being prepared by the Joint Committee on Vocational Education of the Pulp and Paper Industry.

*Volumes I, II and III now issued.*

Volumes IV and V are expected during the year.

The work is adapted to the classroom, to home study and for use as a reference work. Every firm and individual connected with the industry or interested in the pulp and paper business should own one of these sets.

The volumes issued are on sale at \$5.00 a volume and orders should be placed with the Technical Association of the Pulp and Paper Industry, 18 East 41st Street, New York, N. Y.

June 1

## IMPORTED PAPER AND PULP

### NEWSPRINT

IN ROLLS OR SHEETS

From Stock in New York, or Direct From Mill

**E. C. MELBY**

21 East 40th St. New York City

*Representing*  
Drammen Paper Mills, Drammen, Norway  
G. A. Svensen Trading Co., Christiania, Norway

## The Union Sulphur Company

Producers of the Highest Grade  
Brimstone on the market . . .

ABSOLUTELY FREE FROM ARSENIC OR SELENIUM

### The Largest Sulphur Mine in the World

CALCASIEU PARISH, LOUISIANA

Main Offices: Frasch Building, 33 Rector Street, New York

# ROGERS WET MACHINE

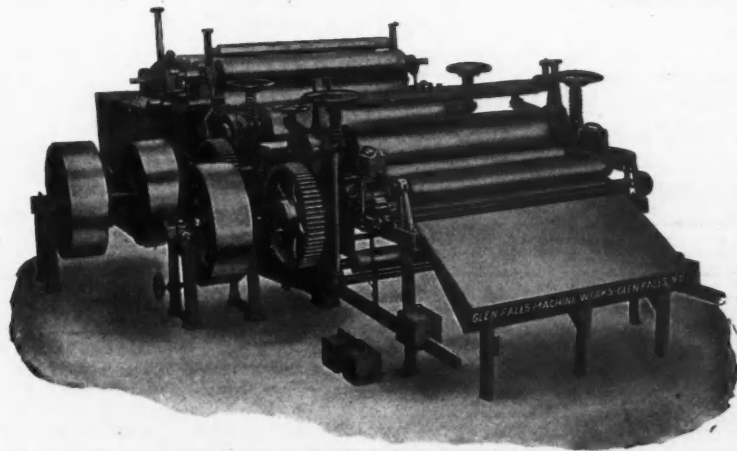


Illustration Shows Rogers Double Press Wet Machine

FOR CHEMICAL PULP—including Sulphite, Sulphate, Soda, also Cotton and Waste Paper fiber.

TYPES—Single and Double Press 72" wide.

CAPACITY—either type 25-30 tons air dry stock per 24 hours.

SHEETS produced by the Double Press Machine uniformly 48% dry. By the Single Press Machine uniformly 40% dry. There is no fold to contain excessive moisture. Sheets are handy size, 33"x36", and are folded once into most convenient bundles for storage, for the beater or for shipping. By this great capacity, high dry test, small amount of floor space per ton pulp produced, exceedingly low cost for labor and maintenance, users are assured that the machine will completely pay for itself within one year, and are promised a handsome return on their investment.

**WORKMANSHIP AND MATERIAL GUARANTEED**

**GLENS FALLS MACHINE WORKS Glens Falls, N. Y.**

*Try Our Split Cams for Your Flat Screens*

**FREDERICK L. SMITH**  
21 EAST 40TH STREET, NEW YORK  
**PULP AND PAPER MILL  
ENGINEER**

**GEORGE F. DREW**

**MILL ARCHITECT AND ENGINEER**  
Consulting and Operating  
**BRUNSWICK, MAINE**  
**SPECIALTY: Pulp, Paper and Saw Mills**  
Cotton, woolen, worsted, cordage, silk mills, and their equipment.  
Appraisals, adjustments.

**TIMBER ESTIMATING**

**P. T. COOLIDGE**  
*Forest Engineer*

31 Central Street Bangor, Maine  
Maps and reports prepared with care and accuracy.

**THOMAS L. TOMLINES & SON**  
**CONSULTING ENGINEERS**

ASSOC. M. AM. SOC. C. E.; 317-319 CITY BANK BLDG.,  
M. AM. SOC. M. E. SYRACUSE, N. Y.  
Paper, Pulp and Fibre Mills, Hy- Steam Power Plants, Plans and  
draulic Developments, Hydro- Specifications, Efficiency  
Electric Plants Engineering  
**CONSULTATION AND REPORTS**

**HARDY S. FERGUSON** CONSULTING  
ENGINEER

Member AM. SOC. C. E., Member AM. SOC. M. E.,  
Member Eng. Inst. Can.

200 FIFTH AVENUE, NEW YORK CITY

Paper, Pulp and Fibre Mills, Including Building and Complete  
Mechanical Equipment, Water Power Development, Dams,  
Storage Reservoirs and Other Hydraulic Structures,  
Examinations, Reports, Estimates of Cost, Designs,  
Specifications, Valuations

**WILLIAM T. FIELD**

*Consulting Engineer*

286 Broadway, Flower Bldg.,  
New York, N. Y. Watertown, N. Y.  
**DESIGNS ESTIMATES REPORTS**

**GEORGE F. HARDY**

M. AM. SOC. C. E., M. AM. SOC. M. E., M. ENG. INST. CAN.

*Mill Architect and Consulting Engineer*

Langdon Building, 309 Broadway, New York

**SPECIALTY: Paper, Pulp and Fibre Mills, Water Power Develop-  
ments, Steam Power Plants, Plans and Specifications**

Evaluations, Reports, Consultation

Cable Address: "Hardstock," A B C 5th Edition, Bedford, McNeill.  
Western Union—Bentley's.

**VITALE & ROTHERY**  
**FOREST ENGINEERS**

527 Fifth Avenue New York, N. Y.

**J.H. WALLACE  
& COMPANY.**  
TEMPLE COURT BUILDING  
NEW YORK CITY, U.S.A.  
CABLES. TRIPLEX. N.Y.

**PULP  
PAPER  
AND  
POWER  
PLANTS**

**ENGINEERS  
& CHEMISTS**  
INDUSTRIAL DESIGN  
PLANT IMPROVEMENT  
LABORATORY TESTS

**J. O. Ross Engineering Corp.**

30 E. 42nd St.

CHICAGO NEW YORK CITY BOSTON

**VAPOR ABSORPTION SYSTEMS**

Visit Booth 141-142  
Knitting Arts Exposition, Philadelphia  
May 22nd-27th  
**MORSE CHAIN COMPANY**  
Ithaca, N. Y.

**Limited Resources Require Careful Management**  
Timber Estimates, Reports and Maps Help You

**JAMES W. SEWALL**

Forest Engineer DAVIDSON BUILDING,  
OLD TOWN, WASHINGTON, D. C.  
MAINE Largest cruising house in America

**THE BRADLEY SALES AGENCY**

Is open to listings of Eastern Canadian Tim-  
berlands. Hardwood and Freehold Pulpwood  
Lands are in active demand at present.

263 St. James St., Montreal, P. Q.

**SLITTERS and SPECIAL MACHINES**

for use in paper industry

**C. BENNINGHOFEN & SONS**

Hamilton, Ohio

Send us your requirements regardless of what they may be

**SANFORD RILEY STOKER CO.**  
WORCESTER, MASS.

Makers of  
**RILEY  
UNDERFED  
STOKERS**

BOSTON

NEW YORK  
CINCINNATI

PHILADELPHIA  
CHICAGO

PITTSBURGH  
ST. PAUL

**MURPHY IRON WORKS**  
DETROIT, MICH.

Makers of  
**MURPHY  
AUTOMATIC  
FURNACES**

BUFFALO

DENVER  
CLEVELAND

"A type to meet every stoker need"



THE  
**MANAGEMENT ENGINEERING AND DEVELOPMENT Co.**  
7TH FLOOR CITY NATIONAL BANK BLDG.,  
DAYTON, OHIO.

DESIGN, CONSTRUCTION AND OPERATION  
OF  
PULP, PAPER AND FIBRE MILLS  
WATERPOWER DEVELOPMENT  
STEAM POWER PLANTS.

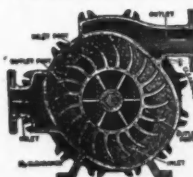
PLANS AND SPECIFICATIONS  
EVALUATIONS AND REPORTS  
•• CONSULTATIONS ••

**STEBBINS ENGINEERING & MFG. CO.**  
*Mill Architects*                      *Watertown, N. Y.*

**Sulphite and Soda Mill  
Equipment**

Specialty: **ACID SYSTEMS, DIGESTER  
AND ACID PROOF LININGS  
GUARANTEED.**

*Service department always ready for emergencies.  
Only high class experienced men employed.*



**EFFICIENT SUCTION  
ROLL OPERATION** de-  
mands the **NASH HYTOR**  
THE NASH ENGINEERING CO.  
SOUTH NORWALK, CONN.

ANNOUNCEMENT OF  
**Charles W. Bell**  
*Consulting Specialist*

In the Manufacture of **PAPER BOX BOARD, TEST  
BOARD, FIBRE BOARD AND STRAWBOARD**  
And their fabrication into **SHIPPING CONTAINERS,  
(Corrugated and Solid Fibre) FOLDING BOXES, etc.**

Forty years' practical experience in all departments—Equipment, processes, formulae, trade customs, management, order and planning system. Markets, sales, estimating, prices, contracts, materials, supplies, collections, arbitrations, receivership and valuations.

*"Let Me Help Solve Your Problems"*

Consultation Strictly Confidential. Correspondence Solicited  
Address—1047 Grand Avenue, Dayton, Ohio

**UNITED STATES TESTING COMPANY, Inc.**  
316 Hudson Street                      *New York City*  
**CHEMISTS**

Microscopical Examination, Physical Tests and Chemical Analysis of Paper. Official Chemists to the American Paper and Pulp Association, Association of American Woodpulp Importers, etc. We analyze Fuels, Chemicals, Dyestuffs, Intermediates, Gasoline, Oils, Paints, Soaps, Greases, Waxes, Water for Drinking or Boiler Purposes, Woodpulp, etc.



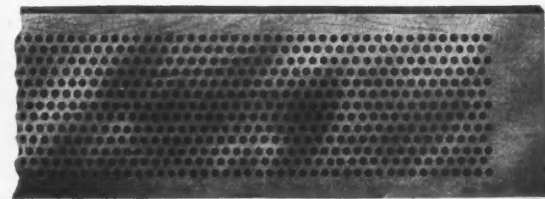
**67 JENSSSEN**  
**Two-Tower Acid  
Systems now in oper-  
tion or building.**

*Normal Prices Today Govern Our  
Installations*

Every second Sulphite Mill on this continent is using our Towers and Making Money by Making Better Acid.

**G. D. Jenssen Company**  
200 5th Ave.                      *New York, N. Y.*

*"Ask Your Neighbor What  
He Thinks of Them."*



**"Lawson" Suction Box Covers**


Made of Toughest Close-grained Rock Maple. Special drilling insures maximum suction, prevents all fins.

Paper Roll Plugs, Beater Paddles, Drainer Bottoms, Cogs, Mill Spools and Drums, Trucks, Dollys, Broke and Stock Cars.

**MENASHA WOOD SPLIT PULLEY CO. Menasha, Wis.**  
*PAPER MILL SUPPLIES FOR 36 YEARS*

**STRATFORD PAPER CO.**                      160 Cornelison Ave.  
*Jersey City, N. J.*

**High Grade Fourdrinier Tissues in Stock for Immediate Delivery**



**NOW IS THE TIME TO BUY OUR RAW MATERIALS**

Out of our forty different grades of paper stock you are assured a steady, reliable source for procuring raw materials in practically every branch of paper making. Having specialized for 35 years in this one field you can depend upon a clean, well-packed, uniform product throughout; fulfillment of delivery promises; and because of our output of 300 tons daily, big tonnage at all times. Write us your wants.

**Mendelson Bros. Paper Stock Co.,**                      *General Offices: 916 So. Michigan Ave., Chicago, Ill.*  
*Long Distance Phones, Harrison 2340 and 5557*

## PAPER TWINE

*of every description*

For use in electrical conduits, cables and furniture, wool or fleece, twine, seaming cord, marking twines and all special paper twines or yarns for knitting, weaving or other manufacturing purposes in plain or printed white or colored.

**NATIONAL PATENT REED SALES CO.**

1096 Drexel Bldg.

Philadelphia, Pa.

## BLUE RIDGE FIBRE

### Bleached Soda Pulp

Manufactured and sold by

**COLUMBIAN PAPER COMPANY**

BUENA VISTA,

VIRGINIA

*Samples and prices upon application*

(SONNEBORN PRODUCTS)

Not the cheapest in Price, but the cheapest in Service. Standard for twelve years.

### LAPIDOLITH

TRADE MARK

**Makes Concrete Floors**

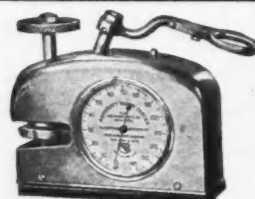
Dustproof and Wearproof  
and resistant to acids and alkali.

Over 250,000,000 square feet of concrete floors  
lapidolized thus far.

*Write for samples and testimonials to Dept. 30*

L. SONNEBORN SONS, Inc.  
116 Fifth Avenue, New York

(SONNEBORN)



**The Ashcroft  
Paper Tester**



**The Ashcroft  
Thickness Gauge**

Actual necessities for all those who make, sell or purchase paper in any form. The thousands in daily use testify to their efficiency.

**THE ASHCROFT MFG. CO.**

119 West 40th Street 29 North Jefferson Street 10 High Street  
New York Chicago, Ill. Boston, Mass.  
Canadian Sales Agents: The Canadian Fairbanks Morse Co., Montreal and Toronto.

## HEINE



LARGE-UNIT

LONGITUDINAL AND  
CROSS DRUM TYPES  
WASTE-HEAT BOILERS  
ALL CONFORM TO ASME CODE

## BOILERS

*Heine Boiler Company Saint Louis USA*

BOILER MANUFACTURERS FOR 40 YEARS

## STORAGE TANKS

**For Sulphite Mills**



More than sixty years' experience enables us to meet your requirements on any tank problem. Our expert crews are at your service for any installation of our products.

*Permit us to estimate on them.*

**G. WOOLFORD WOOD TANK MFG. CO.**  
LINCOLN BLDG. PHILADELPHIA, PENN.

*When you think of Wood Tanks Think Woolford Tanks.*

## WOOD FLOUR

Various degrees of fineness and either fibrous or granular.  
Made from first growth Spruce and Pine, by approved processes.

**UNION WOOD FLOUR CO., INC.**

Hudson Falls, N. Y.

## E. BUTTERWORTH & CO., Inc.

CHARLES H. WOOD, Pres.

LEWIS JENNINGS, Treas.

Boston Office, 138 Federal St.

New York Office, 1123 Broadway

**PAPER MAKERS' SUPPLIES**

Agents for "B" Brand and Snow Brand Bleached Sulphite Pulp

**BELLE ALKALI COMPANY, Belle, W. Va.**  
**PURE CHLORINE BLEACH CAUSTIC SODA**

In cylinders and tanks

**BELLE BRAND**

76%—Solid and Flake

**Arnold Hoffman & Co. Inc., Sole Agents,** PROVIDENCE BOSTON NEW YORK  
PHILADELPHIA CHARLOTTE

JAMES ROSENBERG, PRES.      L. W. BOWMALL, Vice Pres.

**AMERICAN WOODPULP CORPORATION**  
 FOREIGN AND DOMESTIC  
**CHEMICAL and MECHANICAL**  
**WOODPULPS**

*Rags, New Cuttings, Bagging, Etc.*  
*Chemicals of All Descriptions*

New York—347 Madison Ave.

BRANCHES:  
 Stockholm—Sweden  
 Helsinki—Finland

Holyoke—J. B. Woodruff, Inc.  
 Kalamazoo—F. D. Haskell  
 Dayton—R. R. Reed

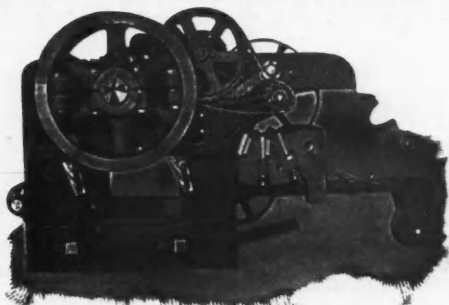
**Missisquoi Pulp and**  
**Paper Company**

SHELDON SPRINGS      VERMONT

White and Tinted Bristols—White  
 Blanks—Index Bristol and Special-  
 ties in Card Boards.

**Don't Use Your Beaters For Rag Cutters**

Put in a  
**GIANT**  
 and cut your stock  
 thoroughly and evenly

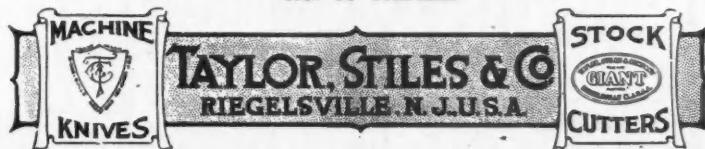


Capacity 2 Tons per  
 hour

Weight 8500 lbs.

For Roofing and Felt  
 Stock

NO. 11 TRIPLEX



Canadian Manufacturers Under Patents: WATEROUS ENGINE WORKS CO., Brantford, Ont., Can.  
 I. MARX & CO., London, E. C., sole agents for the United Kingdom



**BLEACHED SULPHITE**

**SUPERIOR CHEMICAL CO.**

JOLIET, ILLINOIS

Manufacturers

**PAPER MAKERS' and FILTER****ALUM****"DAYTON" BEATING ENGINES**

ARE UNEXCELLED

FOR

**HEAVY DUTY OR FAST TRAVEL**

DESIGNED CORRECTLY

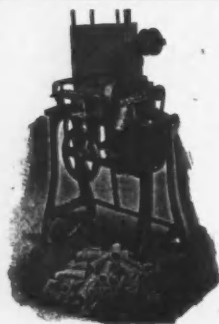
BUILT CAREFULLY

DELIVERED PROMPTLY

GET OUR ESTIMATES.

**Dayton Beater & Hoist Co.**

Dayton, Ohio

**GRISSINGER**

Patented

**AUTOMATIC  
TUBE  
MACHINE**

Wire Stitched Tube

TOILET PAPER  
MACHINERYGRISSINGER MACHINE WORKS  
PHILADELPHIA, PA.Patented { June 24, 1913.  
August 10, 1915**ALUM**

FOR THE PAPER MAKER

Manufactured by

**The Jarecki Chemical Co.**

QUALITY

SERVICE

Sole Selling Agents

**ISAAC WINKLER & BRO.**

CINCINNATI

::

::

NEW YORK

**BLEACHED SULPHITE**

FOR

Writing, Book and Tissue Papers

**PARSONS****Pulp and Lumber Co.**

EDWIN J. DEWEY, Manager Pulp Sales

Offices, 1807-1810 Finance Bldg.,  
PHILADELPHIA, PA.Mills at  
PARSONS, WEST VA.**"DRAPER"****FELTS**

For Any Grade of Paper or Pulp

**ARE GUARANTEED**

To Give Entire Satisfaction

MANUFACTURED BY

**DRAPER BROS. CO., CANTON, MASS.**

FOREIGN and DOMESTIC  
Paper Stock  
New Cuttings  
and Rags

☐

Jute Stock  
Sizing, Sulphite  
and Soda Pulps

200 FIFTH AVE. NEW YORK

**CASTLE, GOTTHEIL & OVERTON**

☐

**Papier-Zeitung**

BERLIN SW 11 (GERMANY)

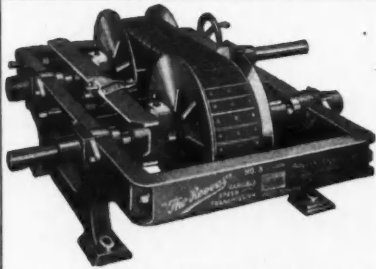
Founded by Carl Hofman, 1876

appears three times a week

Covers the whole paper trade (paper making, transforming,  
stationery). More than 12,500 bonafide sub-  
scribers all over the world.

Subscription: 4 Dollars





*The Reeves*  
Variable  
Speed  
Transmission

THE RIGHT SPEED AT THE RIGHT TIME—that is the only solution for getting superior quality and maximum production of your paper goods at the least expense.

“THE REEVES” Variable Speed Transmission does this very thing to absolute perfection; you can get any variation at any time without stopping your machine. Some decided improvements have been made in the construction of “The Reeves” Transmission, such as:

**TWO KEYS, FULL LENGTH OF SHAFT between boxes, LARGER ROLLER THRUST BEARINGS, LARGER DISCS, PATENT EQUALIZING COLLARS.**

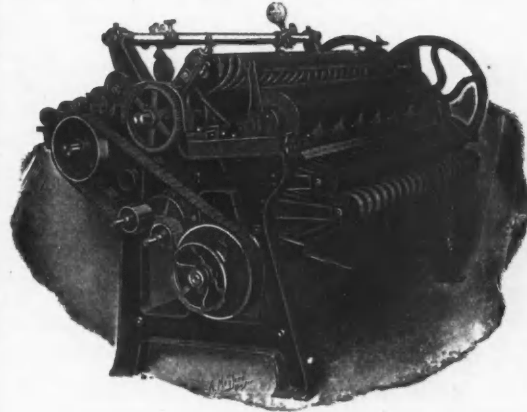
all of which tends to give larger wearing surface, greater carrying capacity and longer life. Special High Duty Ball Bearings are furnished for main boxes if desired.

*It is the only Variable Speed device with 25 years' service record.*

**REEVES PULLEY COMPANY**  
COLUMBUS, INDIANA

**Paper Cutters**

Single, Duplex and Diagonal



Cutter Knives Patent Top Slitters

**HAMBLET MACHINE CO.**  
Lawrence, Mass.

The 1922 Edition

of

**LOCKWOOD'S DIRECTORY**

Of the Paper and Allied Trades

An encyclopedia of the Paper and Pulp Industry and Allied lines, thoroughly revised and up-to-date. Its contents include complete lists of

**PAPER AND PULP MILLS, ALSO CLASSIFICATION OF THEIR PRODUCTS, MAKERS OF PAPER SPECIALTIES, GENERAL PAPER MERCHANTS, PULP, RAG AND PAPER STOCK DEALERS, CONVERTERS OF PAPER, MILL OFFICIALS AND THEIR CONNECTIONS, WATER-MARKS, BRANDS, STATISTICAL INFORMATION, TRADE ASSOCIATIONS AND AUTHENTIC LIST OF WHOLESALE AND RETAIL STATIONERS.**

**Price \$7.00 Express Prepaid**

*Send in Your Order Now*

**Lockwood Trade Journal Co., Inc.**

10 East 39th Street

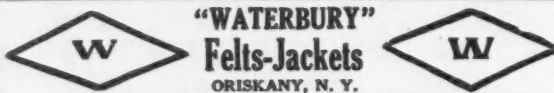
New York

**Job Lots, Rejections, Side Rolls Wanted**

SPOT CASH paid for jobs in bond paper, white or colors, any grade that will cut down to 11 x 17, any weight. Send samples, with lowest spot cash prices. No lot too small, and none too large.  
**MIDWEST PAPER CO., 712 Federal Street, Chicago, Ill.**



Special Shaped Carbon, Black Diamond POINTS FOR TURNING Paper, Cotton Chilled Iron and Hardened Steel Calender Rolls, Hard Rubber, Fibre, etc.  
 Successor to John Dickinson, Established 1796.  
 Agents for Great Britain, C. W. BURTON, GRIFFITHS & CO., Ludgate Square, London.  
 Manufactured by **THOS. L. DICKINSON,** 26 Gold St., NEW YORK



**"WATERBURY" Felts-Jackets**  
 ORISKANY, N. Y.  
 OUR TIGHT FITTING, DIAMOND "W" JACKETS WILL NOT LICK UP AT ANY SPEED  
 1869 {MADE ONLY BY} 1921  
 {GUARANTEED BY}  
**H. WATERBURY AND SONS COMPANY, ORISKANY, N. Y.**

**CRANE BRASS VALVES**

**WILLIAM B. DILLON**  
**DILLON & BARNES**  
*Paper Mill Products and Supplies*  
 52 VANDERBILT AVENUE, NEW YORK  
 Telephone, 7353 Murray Hill

**SHERMAN PAPER COMPANY**  
 Manufacturers of Roll Newsprint  
 ENTIRE PRODUCT FOR 1922 CONTRACTED  
 Mills at  
 Felts Mills, Great Bend and Lafeyvre, N. Y.  
 Main Office  
 Trust Co. Building, Watertown, N. Y.

**AGALITE FILLER**  
**UNITED STATES TALC CO.**  
**GOUVERNEUR NEW YORK**

**CAMACHINE**  
**SLITTERS AND WINDERS**  
 CAMERON MACHINE CO. BROOKLYN, N. Y.

Established 1895  
**DANIEL M. HICKS**  
 (INCORPORATED)  
**PAPER MILL SUPPLIES**  
 200 Fifth Avenue New York City

**Salomon Bros. & Co.**  
 IMPORTERS OF  
**All Grades of Rag and Paper Stock**  
 200 FIFTH AVENUE, NEW YORK  
 COTTON WASTE :: LINTERS :: RAMIE

**Penn Paper and Stock Company**  
 PACKERS OF ALL GRADES OF  
**WASTE PAPER**  
 240 N. FRONT STREET PHILADELPHIA

Manufacturers of All Special Small Roll Products



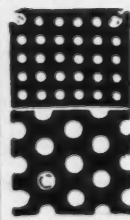
Adding Machine, Cash Register, Die Wiping, Hand Rolls, Etc., Etc.

PAPER MANUFACTURERS CO., Inc., Phila., Pa.

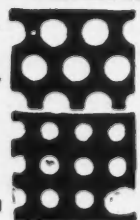
**UNION TALC COMPANY**  
 Finest Grades of Agalite  
 132 Nassau Street New York

**SLITTERS AND WINDERS**  
**SAMUEL M. LANGSTON COMPANY**  
 CAMDEN, N. J.

**FRANKLIN PAPER CO.** HOLYOKE, MASS.  
 MANUFACTURERS OF  
**Index Bristols, White Bristol Blanks, Etc.**



**MANHATTAN PERFORATED METAL CO.**  
 Office and Works: 237-239 Centre St., New York  
**PERFORATORS**  
 of COPPER, BRASS, ZINC, ALUMINUM, TIN, STEEL, IRON, Etc.  
 Write for Copper, Brass, Tin or Aluminum Catalog.  
 Brass and Copper Centrifugal and Juice Strainer Plates a Specialty



## BAKER MANUFACTURING CORPORATION

Formerly

BAKER & SHEVLIN COMPANY

Sole Manufacturers of

# THE MAGAZINE GRINDER

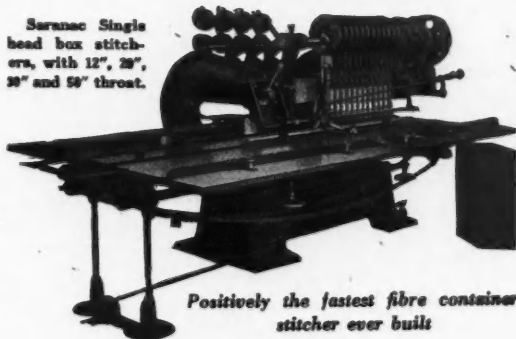
Have you seen the article which was read before the Paper Makers' Convention on Relative Efficiency of the Automatic Magazine and Pocket Grinders? If not, and you are interested, kindly advise and we will send you a copy.

BAKER MANUFACTURING CORPORATION, Saratoga Springs, N.Y.

25 to 40 shipping containers per minute can be made on a

## Saranac Automatic Multiple Head Stitcher

Saranac Single head box stitchers, with 12", 20", 30" and 50" throat.



Positively the fastest fibre container stitcher ever built

It is equipped with twelve stitching heads, so that any number from 1 to 12 staples can be driven at one time. Either a single or double row of staples, or single row with the tie stitch, are automatically driven. It takes less than five minutes to change from the largest to smallest size containers.

*Write for Full Particulars.*

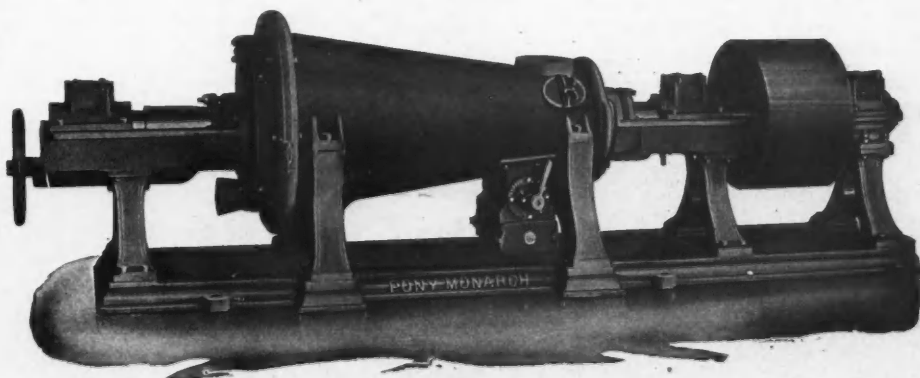
We also manufacture Bottom Sealing Machines.

**Saranac Machine Company**

Benton Harbor, Michigan

WE MAKE  
BEATERS AND  
JORDANS OF  
QUALITY

SIX SIZES OF  
JORDANS,  
BEATERS,  
FROM 3/4 LBS.  
TO 3000 LBS.



**The Noble & Wood Machine Co., Hoosick Falls, N.Y.**

## CLASSIFIED INDEX TO ADVERTISEMENTS

<b>ADDING MACHINE ROLLS.</b> Paper Manufacturers Co. .... 82	<b>CHEMISTS.</b> United States Testing Co. .... 77	<b>FLOOR COVERINGS.</b> L. Sonneborn & Sons ..... 78
<b>AGALITE.</b> Union Talc Co. .... 82 U. S. Talc Co. .... 82	<b>CLAY.</b> Atterbury Bros. .... Front Cover John W. Higman Co. .... 69 Mimer Edgar Co., The ..... 4 Paper Makers Chemical Co. .... 88 Star Clay Company ..... 4 Western Paper Makers Chemical Co. .... 4	<b>FLOOR HARDENER (Concrete).</b> L. Sonneborn & Sons ..... 78
<b>ALUM.</b> The Kalbfleisch Corp. .... — Pennsylvania Salt Mfg. Co. .... 88 Superior Chemical Co. .... 80 Winkler Bros., Inc. .... 80	<b>CLUTCHES (Friction, Etc.).</b> Hill Clutch Co. .... —	<b>FOURDRINER WIRES.</b> Appleton Wire Works ..... 88 Buchanan Bolt & Wire Co. .... 71 Cable Excelsior Wire Mfg. Co. .... 88 Cheney, Bigelow Wire Works ..... 86 Eastwood Wire Mfg. Co. .... 88 Green Bay Wire Works ..... — Lindsay Wire Weaving Co. .... 63 Joseph O'Neill Wire Works ..... 63 The W. S. Tyler Company ..... 87
<b>ARCHITECTS AND ENGINEERS.</b> George F. Drew ..... 76 Hardy F. Ferguson ..... 76 William T. Field ..... 76 George F. Hardy ..... 76 Management Engineering and Development Co. .... 77 F. L. Smith ..... 76 Stebbins Engineering Co. .... 77 Thomas L. Tomlins & Son ..... 76 Vitale & Rothery ..... 76 Joseph H. Wallace & Co. .... 76	<b>COGS.</b> N. P. Bowsler Co. .... 88 Menasha Wood Split Pulley Co. .... 77	<b>FURNACES (Automatic).</b> Murphy Iron Works ..... 76
<b>ASBESTINE PULP.</b> International Pulp Co. .... Front Cover	<b>COMPRESSORS (Air).</b> The Nash Engineering Co. .... 77	<b>GAUGES (Calliper).</b> Farrel Foundry & Machine Co. .... 25
<b>ASH-HANDLING MACHINERY.</b> Jeffrey Mfg. Co. .... 41	<b>CONVEYORS (Pulpwood).</b> Jeffrey Mfg. Co. .... 41 Weller Mfg. Co. .... 35	<b>GAUGES (Pressure, Indicating and Recording).</b> Bristol Co., The ..... 7
<b>BALL BEARINGS.</b> S. K. F. Industries, Inc. .... —	<b>CORDAGE.</b> Columbian Rope Co. .... —	<b>GUMMING AND GLUING MACHINERY.</b> Potdevin Machine Co. .... 9
<b>BARKERS.</b> Valley Iron Works ..... —	<b>CUTTERS.</b> Smith & Winchester Mfg. Co. .... 7	<b>IRON EXTRACTORS.</b> Osaka Co., Roland T. .... 9
<b>BEARINGS (Collar Oiling).</b> Hill Clutch Co. .... —	<b>DIE CUTTERS.</b> Hoggson & Pettis Mfg. Co. .... — Independent Die Co., Inc. .... 6	<b>KNIVES, ETC.</b> Bolton & Son, J. W. .... 9 Machinery Co., of America ..... —
<b>BEATER PADDLES.</b> Menasha Wood Split Pulley Co. .... 77	<b>DIGESTERS.</b> American Welding Co. .... —	<b>LUBRICANTS.</b> Vacuum Oil Co. .... 42, 43
<b>BEATING ENGINES.</b> Appleton Machine Co. .... 40 Beloit Iron Works ..... 14 Clafin Engineering Co. .... 80 Dayton Beater & Hoist Co. .... 80 Dillon Machine Works, Inc. .... 86 Dilts Machine Works, Inc. .... 61 Downingtown Mfg. Co. .... 86 Emerson Mfg. Co. .... 63 Noble & Wood Machine Co. .... 83 Valley Iron Works ..... —	<b>DRINKING CUPS.</b> F. N. Burt Company, Ltd. .... 39	<b>MICROMETERS.</b> Ashcroft Mfg. Co. .... 78 E. J. Cady Co. .... — Foreign Paper Mills, Inc. .... 3
<b>BELTING.</b> Goodyear Tire & Rubber Co. .... 27 R. D. Skinner & Co., Inc. .... —	<b>DRIVES (Gear).</b> Farrel Foundry & Machine Co. .... 25	<b>MICROMETER CALIPERS.</b> Lobdell Car Wheel Co. .... 46
<b>BOILERS.</b> Heine Boiler Co. .... 78	<b>DRIVES (Silent Chain).</b> Morse Chain Co. .... 76	<b>MILL COGS.</b> N. P. Bowsler & Co. .... 88
<b>BRONZE CASTINGS.</b> Hyde Windlass Co. .... —	<b>DRYER EXHAUSTS.</b> The Nash Engineering Co. .... 77	<b>MILL INSTALLATIONS.</b> The Layne Ohio Co. .... —
<b>BUCKETS (Elevator).</b> Hendrick Mfg. Co. .... —	<b>DRYING SYSTEMS.</b> Open Coil Heater & Purifier Co. .... — W. F. Pickles ..... 12 Ross Engineering Co., J. O. .... 76	<b>MOTORS.</b> B. F. Perkins & Son, Inc. .... 11
<b>CALENDER ROLLS.</b> Farrel Foundry & Machine Co. .... 25 Lobdell Car Wheel Co. .... 46 Norwood Engineering Co. .... 5 B. F. Perkins & Son, Inc. .... 11 Textile Finishing Machinery Co. .... 61	<b>DYES, ANILINE.</b> Calco Chemical Co. .... — Heller & Merz ..... 12 Mathieson Alkali Works ..... — National Aniline & Chemical Co. .... 21 The White Tar Aniline Corporation ..... —	<b>MOTOR TRUCKS.</b> Packard Co. .... —
<b>CASEIN.</b> Casein Mfg. Co. .... —	<b>DYE STUFFS.</b> E. I. Du Pont de Nemours & Co. .... —	<b>OILS AND GREASE.</b> Vacuum Oil Co. .... 42, 43
<b>CENTRIFUGAL PUMPS.</b> Valley Iron Works ..... —	<b>ELECTRIC HOISTS.</b> Shepherd Electric Crane & Hoist Co. .... 65	<b>PACKING.</b> Jenkins Bros. .... 65
<b>CHAINS.</b> Jeffrey Mfg. Co. .... 41	<b>ENVELOPE MACHINES.</b> Potdevin Machine Co. .... 9 F. L. Smithe Machine Co. .... 63	<b>PAINTS AND VARNISHES.</b> Du Pont de Nemours Co., E. I. .... —
<b>CHEMICALS, COLORS, ETC.</b> Arnold, Hoffman & Co., Inc. .... 78 Du Pont de Nemours Co. .... — Heller & Merz Co. .... 12 Kutroff, Pickhardt & Co. .... 87 Mathieson Alkali Works ..... — The White Tar Aniline Corporation ..... — C. K. Williams & Co. .... 88	<b>EVAPORATORS.</b> Zaremba Company ..... —	<b>PAPER BAG MACHINERY.</b> Potdevin Machine Co. .... 9 Smith & Winchester Mfg. Co. .... 7
	<b>FAN PUMPS.</b> Valley Iron Works ..... —	<b>PAPER BAG MANUFACTURERS.</b> Lawrence Bag Co. .... 3 Schorsch & Co. .... 71
	<b>FELTS AND JACKETS.</b> Albany Felt Co. .... 10 Appleton Woolen Mills ..... 6 Draper Bros. Co. .... 80 Fitchburg Duck Mills ..... 2 F. C. Huyck & Son ..... 13 Knox Woolen Mills ..... 69 Lockport Felt Co. .... — Orr Felt & Blanket Co. .... 71 Shuler, Benninghofen Co. .... 88 Waterbury Felt Co. .... 4 Waterbury & Sons Co., H. .... 82	<b>PAPER BOX BOARDS.</b> C. L. La Boiteaux Co. .... 5
	<b>FELT ROLLS.</b> Rodney Hunt Machine Co. .... —	<b>PAPER CUTTERS.</b> Hamblet Machine Co. .... 81
	<b>FILTERING SYSTEMS.</b> Norwood Engineering Co. .... 5	<b>PAPER DEALERS.</b> Fernstrom Paper Co. .... 69 B. F. Hammond ..... Front Cover Midwest Paper Co. .... 82

## "BIGGS" ROTARY BLEACHING BOILERS



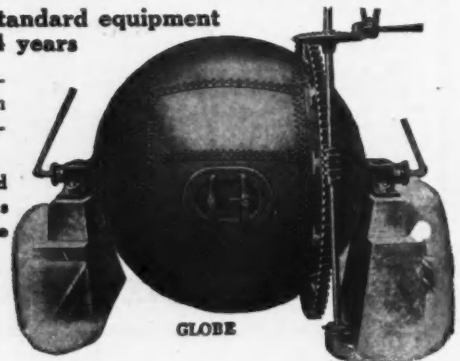
CYLINDER

have been regarded as standard equipment for the last 34 years

May we not figure with you on your next installation?

Steel Storage and Pressure Tanks for every purpose

Write for prices



GLOBE

**The Biggs Boiler Works Company Akron, Ohio, U.S.A.**

# CLASSIFIED INDEX TO ADVERTISEMENTS

<b>PAPER MANUFACTURERS.</b>	Page	<b>PRESS ROLLS.</b>	Page	<b>STOCK REGULATORS.</b>	Page
Bayless Mfg. Co. ....	4	Rodney Hunt Machine Co. ....	—	Trimbe Machine Works ....	46
Becker Paper Corporation ....	37	<b>PLUGS.</b>		<b>SUCTION BOX COVERS.</b>	
Brown Company ....	5	Menasha Wood Split Pulley Co. ....	77	Menasha Wood Split Pulley Co. ....	77
Collins Mfg. Co. ....	13	<b>PLUGS (Wood).</b>		<b>SULPHITE, BLEACHED AND UNBLEACHED.</b>	
Diamond State Fibre Co. ....	Front Cover	O. L. Bartlett ....	11	J. Anderson & Co. ....	4, 29
Eastern Mfg. Co. ....	79	<b>PULP STONES.</b>		The Borregaard Co., Inc. ....	35
Fort Howard Paper Co. ....	11	International Pulp & Stone Co. ....	Front Cover	Brown Co. ....	5
Franklin Paper Co. ....	82	Lombard & Co. ....	87	Butterworth & Co., Inc., E. ....	78
Hammermill Paper Co. ....	—	<b>PUMPS.</b>		Canadian Robert Dollar Co. ....	33
Hanna Paper Corporation ....	5	Frederick Iron & Steel Co. ....	—	Columbian Paper Co. ....	78
Howard Paper Co. ....	61	Hayton Pump & Blower Co. ....	—	Craig-Becker Co., Inc. ....	3
Missisquoi Pulp & Paper Co. ....	79	The Layne-Ohio Company ....	—	Eastern Manufacturing Co. ....	79
Mountain Mill Paper Co. ....	4	<b>PUMPS (Vacuum).</b>		Mead Sales Co., The ....	39
Poland Paper Co. ....	35	The Nash Engineering Co. ....	77	Parsons Pulp & Lumber Co. ....	80
St. Regis Paper Co. ....	52	<b>PRESSURE BULKERS.</b>		Price & Pierce, Ltd. ....	Front Cover
Sherman Paper Co. ....	77	B. F. Perkins & Son, Inc. ....	11	Pulp & Paper Trading Co. ....	4
Stratford Paper Co. ....	—	<b>RAG CUTTERS.</b>		<b>SULPHUR.</b>	
Wausau Sulphate Fibre Co. ....	8	B. F. Perkins & Son, Inc. ....	11	Texas Gulf Sulphur Co. ....	13
West Virginia Pulp & Paper Co. ....	8	Taylor, Stiles & Co. ....	79	Union Sulphur Co. ....	75
<b>PAPER AND PULP MACHINERY.</b>		<b>REAM CUTTERS.</b>		<b>TANKS (Water, Oil, etc.).</b>	
Appleton Machine Co. ....	40	Geo. T. McLaughlin Co. ....	—	W. E. Caldwell Co. ....	77
Bagley & Sewell Co. ....	—	<b>RECORDING INSTRUMENTS.</b>		New England Tank & Tower Co. ....	87
Baker Mfg. Co. ....	83	Bristol Co. ....	7	Stearns Lumber Co., A. T. ....	—
Beloit Iron Works ....	14	<b>REGISTERS.</b>		Tokheim Oil Tank & Pump Co. ....	6
Bird Machine Co. ....	23	Standard Register Co. ....	—	G. Woolford Wood Tank Co. ....	78
Black-Clawson Co. ....	11	<b>ROLL GRINDERS.</b>		<b>TIMBER ESTIMATES.</b>	
Clark-Aiken Co. ....	8	Farrel Foundry & Machine Co. ....	25	The Bradley Sales Agency ....	76
Frank H. Davis ....	73	Lobdell Car Wheel Co. ....	46	P. T. Coolidge ....	76
Downingtown Mfg. Co. ....	86	<b>ROSIN.</b>		James W. Sewall ....	76
Farrel Foundry & Machine Co. ....	25	Hercules Powder Co. ....	—	<b>TRANSMISSION MACHINERY.</b>	
Glens Falls Machine Works ....	75	<b>ROBIN SIZE.</b>		H. W. Caldwell Co. ....	3
Improved Paper Machinery ....	33	Arabol Mfg. Co. ....	87	Hill Clutch Co. ....	81
Sandy Hill Iron & Brass Co. ....	—	Paper Makers Chemical Co. ....	4	Reeves Pulley Co. ....	81
Shartle Bros. Machine Co. ....	74	Western Paper Makers Chemical Co. ....	4	Weller Mfg. Co. ....	35
Smith & Winchester Mfg. Co. ....	46	<b>ROTARY BLEACHING BOILERS.</b>		<b>TURBINES.</b>	
Trimbe Machine Works ....	—	Biggs Boiler Works Co. ....	84	S. Morgan Smith Co. ....	—
Valley Iron Works ....	—	<b>SAVEALLS.</b>		<b>TURPENTINE.</b>	
Waterville Iron Works ....	2	Bird Machine Co. ....	23	Hercules Powder Co. ....	—
<b>PAPER MILL AGENTS.</b>		<b>SATIN WHITE.</b>		<b>TWINES.</b>	
Dillon & Barnes ....	82	The Kahlisch Corp. ....	—	American Manufacturing Co. ....	40
McIver, Dana T. ....	2	Paper Makers Chemical Co. ....	4	National Patent Reed Sales Co. ....	78
Melby, E. C. ....	75	Western Paper Makers Chemical Co. ....	4	<b>VALVES.</b>	
<b>PAPER AND PULP MILL BROKERS.</b>		<b>SCALES (Paper).</b>		Crane Co. ....	82
Gibbs-Bower Co. ....	—	Fred Baker ....	—	Jenkins Bros. ....	65
<b>PAPER SPECIALIST.</b>		E. J. Cady & Co. ....	—	<b>VAPOR ABSORPTION SYSTEMS.</b>	
Charles W. Bell ....	77	Foreign Paper Mills, Inc. ....	3	Ross Engineering Co., J. O. ....	76
<b>PAPER STOCK.</b>		<b>SCREENS.</b>		<b>VENTILATING FANS.</b>	
Atterbury Bros. ....	Front Cover	Beloit Iron Works ....	14	B. F. Perkins & Son, Inc. ....	11
Butterworth & Co., Inc., E. ....	78	Bird Machine Co. ....	23	Ross Engineering Co. ....	76
Castle, Gotthel & Overton ....	80	Central Mfg. Co. ....	61	<b>VEGETABLE PARCHMENT PAPERS.</b>	
Gumbinsky Bros. ....	88	Wm. A. Hardy & Sons Co. ....	63	Kalamazoo Vegetable Parchment Co. ....	8
Hicks, Daniel M. ....	82	Union Screen Plate Co. ....	85	<b>WATER FILTERS.</b>	
Mendelson Bros. Paper Stock Co. ....	77	<b>SHREDDERS (Pulp and Paper).</b>		Hungerford & Terry, Inc. ....	—
Penn Paper & Stock Co. ....	82	Valley Iron Works ....	—	<b>WATER SUPPLIES.</b>	
Salomon Bros. & Co. ....	82	<b>SKYLIGHTS.</b>		The Layne-Ohio Company ....	—
Train-Smith Co. ....	Front Cover	E. Van Noorden & Co. ....	87	<b>WOOD FLOUR.</b>	
<b>PAPER TESTERS.</b>		<b>SLASHERS.</b>		Union Wood Flour Co. ....	78
Ashcroft Mfg. Co. ....	78	Ryther & Pringle Co. ....	41	<b>WOOD PULP IMPORTERS.</b>	
Foreign Paper Mills, Inc. ....	3	<b>SLITTERS AND REWINDERS.</b>		American Wood Pulp Corp. ....	79
B. F. Perkins & Son, Inc. ....	11	Beloit Iron Works ....	14	J. Anderson & Co. ....	4, 29
Thwing Instrument Co. ....	65	C. Benninghofen & Son ....	76	Ira Beebe & Co. ....	87
Valley Iron Works ....	—	Cameron Machine Works ....	82	The Borregaard Co., Inc. ....	35
<b>PAPER TUBE MACHINERY.</b>		Dietz Machine Works ....	10	M. Gottesman & Co. ....	—
Dietz Machine Works ....	10	Samuel M. Langston Co. ....	82	Hammond, R. F. ....	Front Cover
Grissinger Machine Works ....	86	<b>STARCH.</b>		E. J. Keller Company ....	87
<b>PAPER WAXING MACHINERY.</b>		Corn Products Refining Company ....	8	Lagerloef Trading Co. ....	12
Farrel Foundry & Machine Co. ....	25	<b>STEAM SPECIALTIES.</b>		Mead Sales Co., The ....	39
Potdevin Machine Co. ....	9	Crane Co. ....	82	Nilsen, Lyon & Co., Inc. ....	19
<b>PERFORATING MACHINES.</b>		Open Coil Heater & Purifier Co. ....	—	A. J. Pagel & Co., Inc. ....	19
Dietz Machine Works ....	10	<b>STITCHING MACHINERY.</b>		J. F. Patton & Co., Inc. ....	10
<b>PERFORATED METAL.</b>		Saranac Machine Co. ....	83	Perkins-Goodwin Co. ....	37
Harrington & King Perforating Co. ....	71			Scandinavian-American Trading Company ....	Front Cover
Hendrick Mfg. Co. ....	9			<b>WOOD ROLLS.</b>	
Charles Mundt & Sons ....	63			Rodney Hunt Machine Co. ....	—
Manhattan Perforated Metal Co. ....	82				
<b>PIPE (Genuine Wrought Iron).</b>					
Reading Iron Co. ....	31				

**Fitchburg, Mass., U. S. A. UNION SCREEN PLATE COMPANY Lennoxville, P. Q. Canada**

**UNION BRONZE SCREEN PLATES** (Best phosphorized Cast Metal) **ROLLED BRASS** (Union Quality)

Old Plates RECLOSED and RECUT to accurate gaugs.

UNION BRONZE SCREWS for Screen Plates

UNION BRONZE SUCTION BOX PLATES

Immediate Delivery of the Largest Orders. Satisfaction Guaranteed.

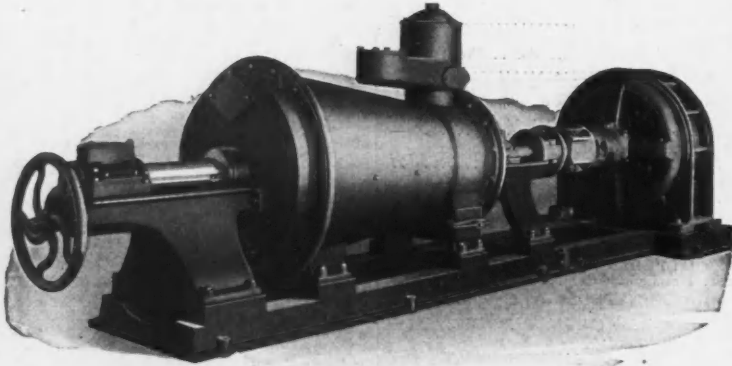
**THE UNION WITHAM SCREEN PLATE VAT AND FASTENERS**

THE ORIGINAL THE BEST

Over One Thousand in Successful Operation Recommended by Screen Makers



## THE DILLON JORDAN



Our latest Improved Machine, three sizes; belt or direct connected motor driven. All Bearings self-oiling, adjustable and water-cooled. Fitted with Standard Steel Knives, Special Heat Treated Steel, Bronze, or Manganese Steel Plug and Shell Lining.

*For full particulars apply to*

**DILLON MACHINE CO., Inc.**  
Builders of Paper Mill Machinery  
Lawrence, Mass.

## Bandless Beater Rolls

### BEATING ENGINES

All Kinds of Fly Bars and Bed Plates

**DOWNINGTOWN MANUFACTURING CO.**

EAST DOWNINGTOWN, PA.

U. S. A.

ESTABLISHED 1842

**FOURDRINIER WIRES**

DANDY ROLLS  
CYLINDER  
MOLDS

**CHENEY BIGELOW WIRE WORKS**  
SPRINGFIELD, MASS.

MANUFACTURERS

Paper Mill Wire Cloth, Bank  
and Office Railings and Grill Work

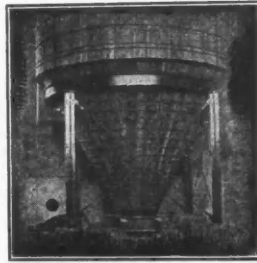
## Dry Rosin Size



Brittle and easily soluble. Cheapest size out. Cheaper than mill made size. Also our hot and cold water sizes; standard quality. Cleaner, more uniform and economical than either mill made sizes or those offered by our competitors. Also Arabol Paper Size, Splicing Gums, Condensed Paste Powder, Paper Makers' Starches.

**Arabol Manufacturing Co.**  
100 William Street NEW YORK

## NEW ENGLAND TANK & TOWER CO.



**WOOD TANKS  
FOR ALL  
PURPOSES**

Everett Station, Boston, Mass.  
New York Office: 30 Church St.

## E. J. KELLER COMPANY

INCORPORATED

200 FIFTH AVENUE  
NEW YORK

FOREIGN AND DOMESTIC  
PAPER MAKERS' SUPPLIES  
CHEMICAL AND MECHANICAL PULPS  
COTTON, JUTE AND FLAX WASTES  
EAST INDIA MERCHANDISE

## Van Noorden Skylights



are as  
**Indispensable**

To a modern Paper Mill as its important inner equipment. "DAYLITE" means Nature's light without weather or condensation drip.

**E. VAN NOORDEN & CO.** 103 Magazine St. Boston, Mass.

# PULP STONES

of absolutely the finest quality

**Lombard & Co., Incorporated**

Importers and Dealers

236-238 A Street : BOSTON, MASS.

Branch at Montreal, Canada

ESTABLISHED 1851

IRA L. BEEBE

CYRUS E. JONES

**IRA L. BEEBE & CO.**

132 Nassau St., New York

IMPORTERS AND DEALERS IN



**WOOD PULP**

## "TYLER" FOURDRINIER WIRES



**R**UN straight and true and are long-wearing.

Widths up to 250 inches, in brass, bronze and phosphor bronze.

Also Cylinder Faces and Washer Wires.

THE  
**W. S. TYLER COMPANY**  
Cleveland, Ohio

## COLORS FOR

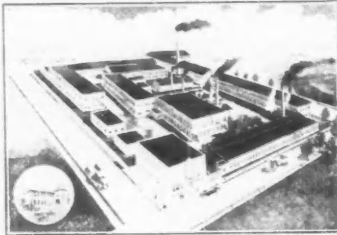
# PAPERMAKERS

**KUTTROFF, PICKHARDT & CO.**  
INCORPORATED

128 Duane Street - - New York  
BOSTON - 157 Federal St. PHILA. - 111 Arch St.  
PROV. - 52 Exchange Pl. CHL. - 305 W. Randolph St.

**EASTWOOD WIRE MFG. CO.**

Fourdrinier  
Cylinder  
&  
Washer  
Wires  
in  
Brass  
and  
Bronze



Valves,  
Cocks  
Fittings  
Unions  
and  
Castings  
in  
"Perfection"  
Bronze

Cylinder Moulds      Blow Off Valves  
**BELLEVILLE, NEW JERSEY, U. S. A.**

**C. K. WILLIAMS & CO., EASTON PA.**



Proprietors of the Fenna, Dry Paint and Color Works and the Helios Dry Color, Chemical and Copperas Works of Allentown, Pa.

Manufacturers, Miners and Importers of Coloring Materials, such as Venetian Reds, Red, Brown, Black, Yellow, Oxides, Chrome and other Ochres, also Paper Fillers—as Agalites, Mineral Pulp, Talc, China and other Clays.

**COLORS FOR PAPER MANUFACTURERS' USE**

**THE WM. CABLE EXCELSIOR WIRE MFG. CO.**



Established 1848  
Incorporated 1876-1896

Manufacturers of  
Superior Fourdrinier  
Wires  
Brass, Copper and  
Iron Wire Cloth of  
Every Description.  
Best Quality of  
Wire Rope.



Write for Price List

74-90 Ainslie St.      **BROOKLYN, N. Y.**

**"G.B." 3RDS & BLUES**

EXCEL IN COLOR, STRENGTH,  
RAG CONTENT

*Inquiries solicited*

**GUMBINSKY BROS. CO.**

America's Largest Packers of Rags and Waste Paper  
2261 South Union Ave., Chicago, Illinois



**Don't Guess at Important Matters  
BOWSHER'S SPEED or MOTION  
INDICATOR is indispensable**

In obtaining a UNIFORM speed of machinery, and is one of the most PROFITABLE little devices ever put in a mill. Will pay for itself in 30 days. Dial 12 in. in diam. Weight, 10 lbs.

The N. P. Bowsheer Co.,      South Bend, Ind.

**NATRONA Porous Alum**

MANUFACTURED BY  
**PENNSYLVANIA SALT MFG. COMPANY  
PHILADELPHIA**



**Hamilton Board Felts**

Our style No. 82 top felt and style No. 87 bottom felt have the bulk of the filling threads on the face of the fabric. This style of weave causes the felts to give a smoother finish and longer service than can be secured from plain weave board felts besides shedding the water better. They do not "roll on the edge" and are billed at the same list and pound prices as our plain board felts.

**SHULER AND BENNINGHOFEN  
HAMILTON, OHIO**

FOURDRINIER CYLINDER WASHER **WIRES**

50 years' experience as wire makers  
insures highest quality of product

**"Appleton Wires  
Are Good Wires"**

Appleton Wire Works      Appleton, Wis.